U.S. Department of the Interior
Bureau of Land Management
Kremmling Field Office
P O Box 68
Kremmling, CO 80459

ENVIRONMENTAL ASSESSMENT

NUMBER: DOI-BLM-LLCON02000-2012-001 EA

CASEFILE/PROJECT NUMBER:

PROJECT NAME: Mule Creek Hazardous Fuels Reduction Treatment

LEGAL DESCRIPTION:
BLM lands: T. 1 S., R. 78 W., sec. 20, 21, 27-29, 31-34; T. .2 S., R. 78 W., sec 5, 6; 6th P.M.

APPLICANT: Bureau of Land Management

PURPOSE & NEED FOR THE ACTION:

The BLM is proposing to treat the Mule Creek project area (map 1) by forms of or combinations of mechanical, hand, prescribed fire, and natural ignition fire treatments. The purpose of this project is to;

- Reduce the number of acres of Fire Regime Condition Class 2 and 3, this will help reduce the risk of catastrophic fire,
- Reduce the fire intensity to and from adjacent at-risk communities,
- Reduce the fuel loading of dead and beetle killed trees, and increase firefighter and public safety in the Mule Creek area.

The need is to comply with the Healthy Forest Restoration Act (HFRA) of 2003 (P.L. 108-148) and the Bark Beetle Strategic Plan Colorado 2012.

Decision to be Made: The BLM will decide whether or not to treat Fire Regime Condition Class 2 and 3, along with Mountain Pine Beetle infected areas within the Mule Creek Hazardous Fuels Reduction Treatment, and if so by which type or types of treatment.

SCOPING, PUBLIC INVOLVEMENT, AND ISSUES:

Scoping: Scoping was the primary mechanism used by the BLM to initially identify issues. Internal scoping was initiated when the project was presented to the Kremmling Field Office (KRFO) interdisciplinary team on 11/14/2011. External scoping was conducted by posting this project on the KRFO's on-line National Environmental Policy Act (NEPA) register on 4/2/2013. A scoping letter was sent out to interested parties on 11/22/2011. A complete list of parties

notified can be found in the attachments, figure 1. On 02/02/2012 a public scoping meeting was held at the Sulphur Ranger District in Hot Sulphur Springs with the Arapaho-Roosevelt National Forest and Department of Road and Bridge Grand County, 2 representatives from each department were at the meeting. On 05/05/2012 the Hot-Suphur Fire Department held a public meeting and the proposed project description was made available. An additional public scoping meeting was held on December 12, 2012 at the Aspen Canyon Ranch near the project site, two people from Aspen Canyon Ranch, and one person from Colorado State Forestry participated at the meeting. The public meeting was advertised in the Ski-Hi newspaper from December 3 to the 12th 2012.

Issues identified during Public Scoping: The Department of Road and Bridge Grand County along with the Arapaho-Roosevelt National Forest voiced concerns about noxious weeds. The Arapaho-Roosevelt National Forest was also concerned about unauthorized off-road travel onto the forest if the trees are removed.

DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES:

Background/Introduction:
The proposed project area has recently experienced a Mountain Pine Beetle (MPB) epidemic, and 85-95 percent of the mature lodgepole pine in the area has been killed.

The resulting high volumes of fuels from MPB mortality could lead to high intensity and, potentially, higher severity wildfires. Hazardous fuels concentrations are concerns because of the existing and proposed development on adjacent private land. Extreme fire behavior attributes such as: plume dominated fires, firewhirls, and flame lengths over 8ft, create safety concerns for fire fighters, and limit the protection abilities of fire fighters to protect nearby homes and structures.

There is a need to address hazardous fuels that may increase the intensity, severity of wildfires, and to address how hazardous fuels may limit the ability to control wildfire in this area. There is a need to salvage the dead timber before it deteriorates, and loses its value as saw timber or other forest products.

Indicators of wildland fire ecology and management are summarized through fire regime and fire regime condition class classifications. Fire regime is a concept used to characterize the personality of a fire in a given vegetation type, such as how often an area burns, the type of pattern created, and the ecological effects. Fire regime condition class (FRCC) indicates the degree of departure from the historic fire regime (HFR) (Hann and Bunnell 2001(Table 3-28). While the fire regime of a particular area is not likely to change except in the very long term, the FRCC can be changed through fire management and other vegetation management actions. Condition Class I is low vegetation departure, Condition Class II is moderate vegetation departure, and Condition Class III is high vegetation departure.

The Mule Creek EA proposed project area encompasses approximately 2,440 acres. Of the 2,440 acres, less than one percent is FRCC 1 (15 acres), 56 percent is FRCC 2 (1356 acres), 41

percent is FRCC 3 (1003 acres) and three percent is other (66 acres, not able to burn, rock, water, roads, etc.).

The Mule Creek prescribed fire project was completed under a categorical exclusion (CO-120-2005-030 CE) in 2005, the decision of that categorical exclusion was to use a combination of prescribed fire and mechanical treatment (brush beating) to improve a meadow and shrubland environment in the Mule Creek area (Skylark allotment see Map 2) of Grand County. The project was never initiated and currently there is extensive lodgepole pine mortality in the proposed project area due to the MPB infestation. In 2005, under the categorical exclusion, the size of the project was 840 acres. Under the proposed action the total size of the project would be 2,440 acres. The increase in the size of the project area is due to the large spatial extent of the MPB infestation.

A published literature review indicates that lodge pole pine trees killed by Mountain Pine Beetles in previously unmanaged stands begin falling approximately five years after death and most dead trees are on the ground within 14 years (Lewis and Hartley, 2006).

The Mule Creek EA proposed project area is broken up into three units of BLM-managed lands.

The first area, Skylark, is located along Grand County Road 3(GCR3) and consists of 890 acres of BLM-managed lands. Skylark (T. 1 S., R. 78 W., sec. 28, 29, 31-33, T. 2 S., R. 78 W., and sec. 5-8) is bordered by GCR3 to the north, Mule Creek to the east, private land to the west and Forest Service lands to the south. Approximately 24 homes of an at-risk community are located on the north side of GCR3. The Skylark area consists of previously irrigated meadows with stands of lodgepole pine and aspen conifer mixes along the meadows. The area receives heavy use by hunters during the fall hunting season. There is a power line that runs along GCR3 in the Skylark area that ties into to a sub division that is located between all three areas. There are also approximately 30 homes located along GCR3 and Grand County Road 34 that would be considered an at-risk community. The project is located in a Wildland Urban Interface (WUI) identified in the December 2006 Grand County Community Wildfire Protection Plan, and is dominated by mature lodgepole pine forests characterized by a low frequency, stand replacement fire regime.

The second area of the Mule Creek project, Morgan Gulch, is located along GCR 3 approximately one mile east of Skylark. Morgan Gulch (T. 1 S. R. 78 W., sec. 27, 28, 33-34), is bordered by private on the north, south, and west side; the Williams Fork River also borders the area on the west side. Forest Service-managed lands border the area to the north, east, and south. The area encompasses a total of 1,150 acres, mostly lodge pole pine with some spruce and fir, and open sage meadows on southern exposures. A power line runs through sections 33 and 34, and there is a bridge that crosses the Williams Fork River in section 30 with a 20 ton load limit that allows access to a right of way that accesses a private property.

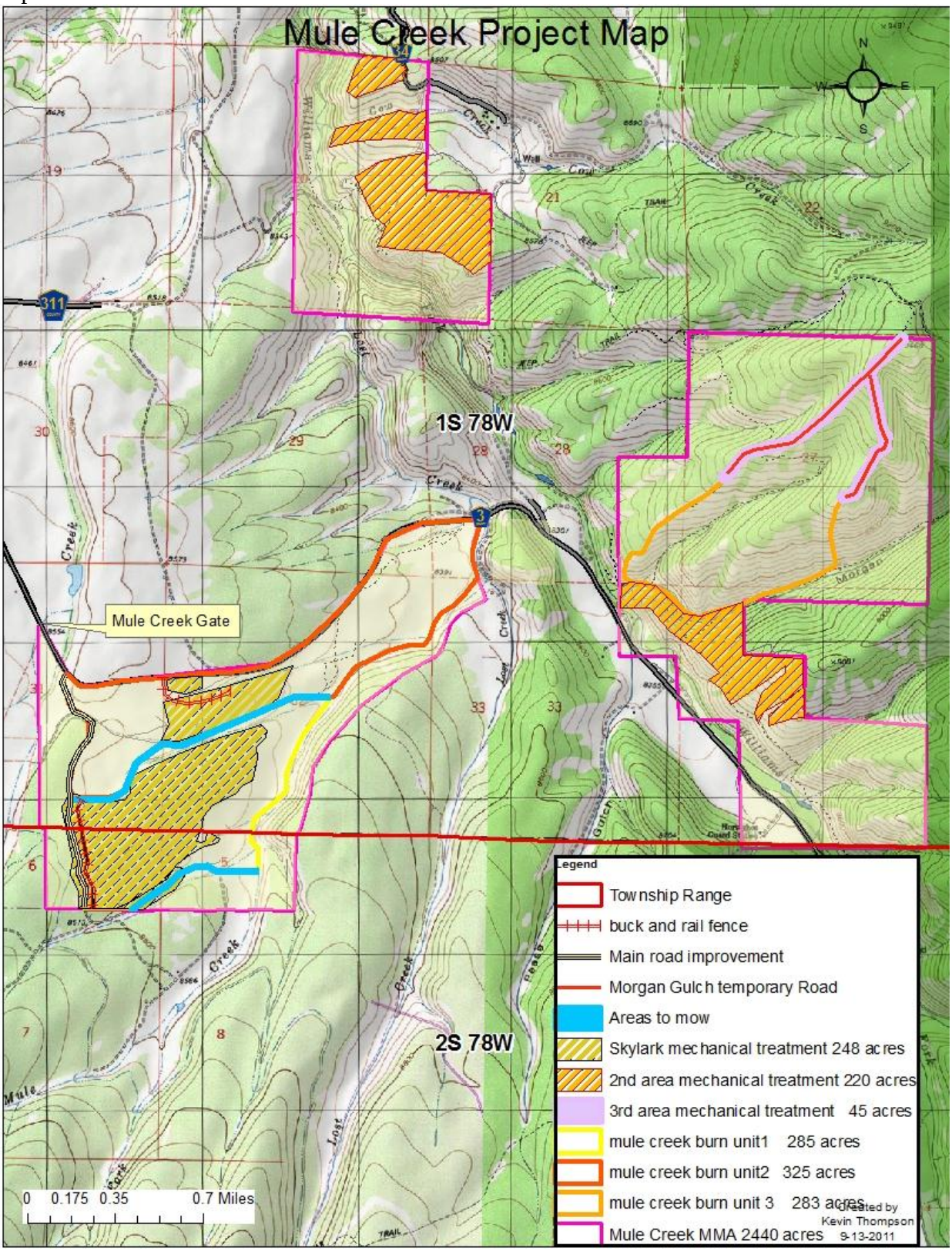
The third area, Cow Creek (T. 1 S., R. 78 W., sec. 20, 21), is located along GCR 34, approximately one mile north of Skylark. Cow Creek is surrounded by private land. The Williams Fork River runs through the area, the total acreage for the this area is 432 acres, and

encompasses mostly lodge pole pine with some spruce, ponderosa pine, and fir, with open sage meadows on southern exposures.

Many private landowners have expressed concern about the beetle infestation and resulting loss of mature lodgepole pine trees. In efforts to suppress the beetle infestation, some of these landowners have treated lodgepole stands on their properties and have requested that the federal government treat adjacent BLM administered lands to suppress insect population and reduce fuels across a broad landscape.

Proposed Action:
The proposed action would use fire, both natural and prescribed, and mechanical treatments to bring the FRCC in the proposed project area to a more balanced condition. A more desired FRCC would have a higher percentage in FRCC 1 and FRCC 2, rather than in FRCC 2 and FRCC 3. The proposed fuel treatment area within the Mule Creek Project would be approximately 2,000 acres within an overall area of 2,440 acres.

Map 1


Mule Creek Project Map
1S 78W
2S 78W
Mule Creek Gate
Legend
Township Range
buck and rail fence
Main road improvement
Morgan Gulch temporary Road
Areas to mow
Skylark mechanical treatment 248 acres
2nd area mechanical treatment 220 acres
3rd area mechanical treatment 45 acres
mule creek burn unit1 285 acres
mule creek burn unit2 325 acres
mule creek burn unit 3 283 acres
Mule Creek MMA 2440 acres
Created by
Kevin Thompson
9-13-2011
0 0.175 0.35 0.7 Miles

Fire Management:

Within the project area, the proposal includes treatment of up to approximately 1,500 acres with prescribed fire by forms of broadcast burning, by hand or aerial ignition (helitorch or plastic sphere device, PSD), and pile burning.

Treatments primarily include burning stands of beetle-killed lodgepole pine to reduce hazardous fuels, modify fire behavior, and to accelerate the natural stand regeneration process. Implementation of these burns would be expected to result in surface fire behavior with a minor component of torching and crown fire behavior. Additional treatments associated with the proposed action also include burning in aspen and sagebrush to bring these fuels types into a more favorable FRCC. In some cases, vegetation may be cut by hand and cleared to create a fire containment line.

The type of fire to be utilized for each treatment would vary across the project from low intensity ground fire (flame heights 1-3 ft.) in meadow areas, to high intensity stand replacement type prescriptions (flame heights 10-300 ft.) in the lodge pole pine stands. The use of this management tool primarily would support the desired FRCC goals, would create improved forest-woodland health, would increase potential wildlife habitat, and would serve as catastrophic event mitigation.

Objectives for areas where fire is the primary tool are:

- 30-90 percent reduction of dead and down lodge pole pine;
- Increase crown spacing of forested area;
- Increase areas that support growth of grass and forbs;
- Increase open areas that would be useable for safety zones in future firefighting efforts.

If a natural ignition were to occur within the project boundary, the ignition would be used to meet the same objectives as a prescribed fire. Current roadway corridors would be used for holding lines, along with natural barriers and perennial streams, with an effort to keep fire off of private land and within the project boundaries.

Mechanical Treatments:

Approximately 300-525 acres would be treated by hand or mechanical treatment with the same objectives as prescribed fire, but used in accessible areas or areas where treatments are better suited than fire. Treatments for mechanical areas are as follows:

Cutting and removing infested trees (sanitation) in susceptible stands of lodgepole pine to reduce the ability of beetles to spread.

Cutting and removing dead trees, possibly with clearcuts, to reduce heavy fuel accumulations.

Fuels mitigation (mix of salvage, sanitation, mastication, chipping, slash treatment and treating existing vegetation) to stimulate aspen regeneration.

Objectives for areas where machinery is the primary tool are:

- Remove all identified dead tree species identified by the BLM;
- Leave all identified live aspen, ponderosa pine, Spruce, Fir, lodgepole pine and Douglas Fir trees identified by the BLM;
- Live designated tree species over 5" in Diameter at Breast Height (DBH) would be cut if needed to reduce windthrow. Windthrow is the displacement of trees due to the wind. It is more likely when all other trees have been removed and only a few are left standing.
- Mechanical areas would have the product removed for salvage and or piled;
- All piles would be treated with fire, and or mulched by machinery or removed from the site.

Mechanical treatments are treatments by machinery such as Bullhogs, Hyro-axes, Timbco, Fella-bunchers, skid steers, chainsaws, Fecons, or other vegetative altering machinery. Treatments would be conducted by the BLM or contractors. Vegetation treatments could result in both timber sales and service contracts, and may be done through a stewardship contract or by BLM employees.

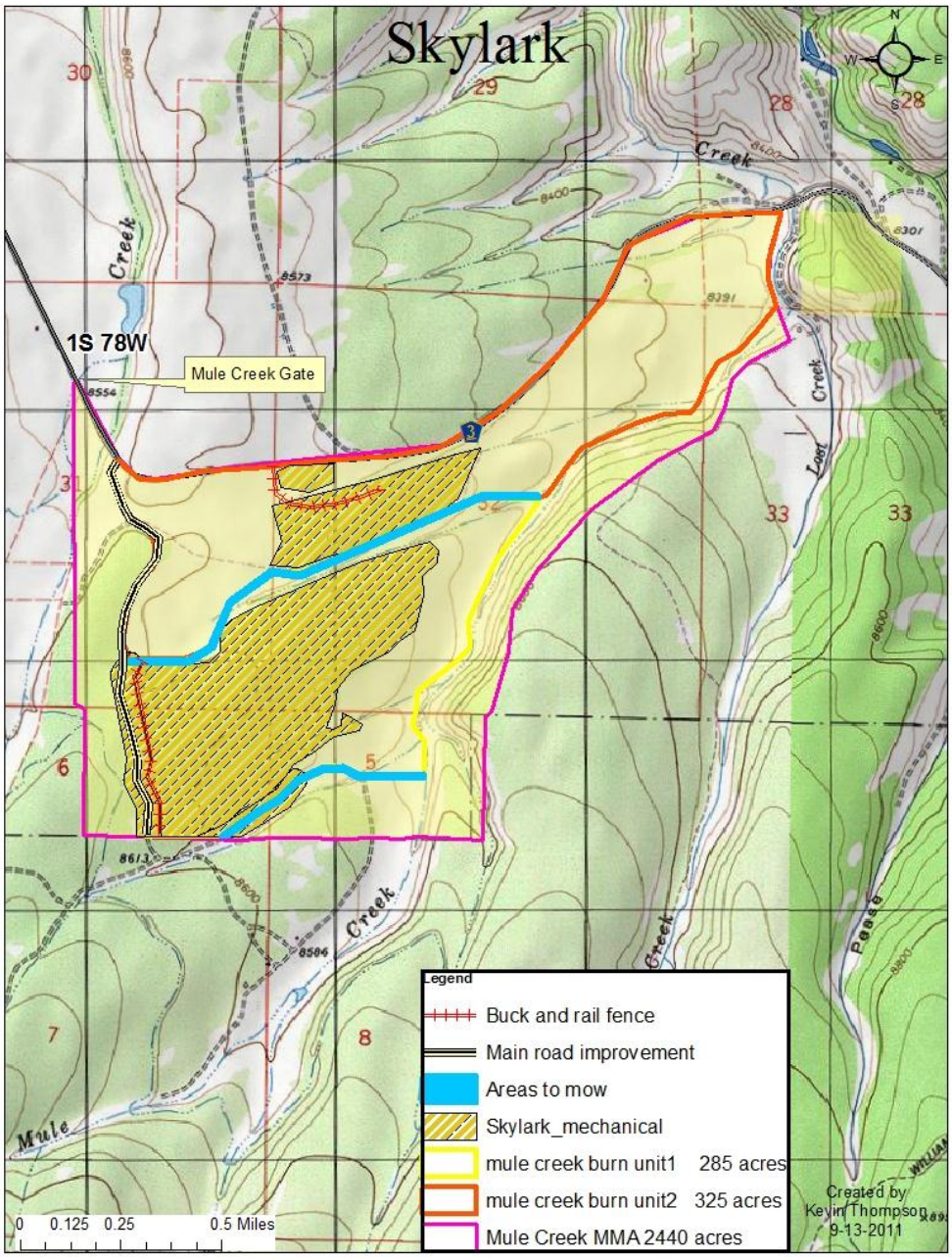
The proposed project would salvage dead and dying lodgepole pine from the three areas consisting of three treatment units (see Map 1). Units may resemble clearcuts with some advanced natural regeneration after harvest. Machine piling of the landing slash, lop and scatter of the unit slash, and burning the piles would be done to manage the slash. Vegetation would be restored by natural regeneration. No new road construction would be required on any of the three areas. Temporary roads in the Morgan Gulch and Cow Creek areas would be constructed, and no more than two miles would be needed. In addition, 90 acres in the Morgan Gulch area would be treated to reduce the fuels hazard on BLM administered lands along the private land boundary, possibly with no commercial harvest of timber. Fuels treatment in the Morgan Gulch area would consist of opening up the crowns within the stand by thinning, piling the slash and existing fuels, and burning the piles.

The Mule Creek Project is broken up into three areas; Skylark, Morgan Gulch, and Cow Creek. Each area would breakdown as follows:

The Skylark (Map 2) area would have two broadcast prescribe burn units proposed, one mow area, and two mechanical treatment area. There would also be improvements or maintenance to the main road to help with ingress and egress for the prescribed fire units or a wildfire. A buck and rail fence would also be built to help limit unauthorized vehicle travel. Approximately 4,500 feet would be needed. The first burn unit is approximately 285 acres, and would be located in the southwestern portion of Skylark. A 248 acre removal of lodgepole pine, along with other dead tree species is proposed in the forested areas. A mow line along the southern boundary is proposed to help in holding efforts for the prescribed burn. The mow line would be a maximum of 20 feet wide and follow an existing road, and would then cut through the meadow stopping a 100 feet from Mule Creek. The machinery mow line would stop 100 feet from Mule Creek

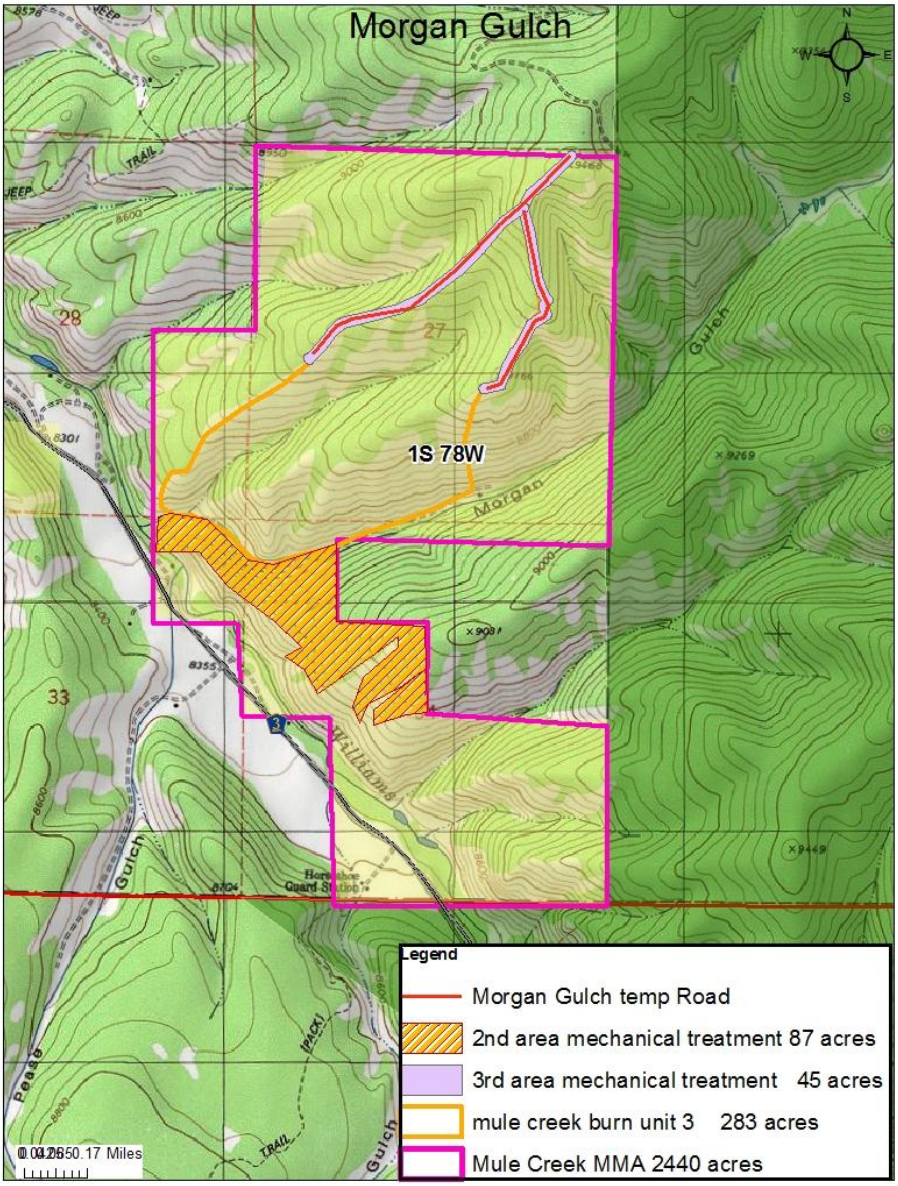
proper from there a wet line using pumps and or an engine(s) would be used to keep the fire 100 feet from Mule Creek proper. Burn unit two is located north of burn unit one, and is approximately 325 acres. Burn unit two consists of sagebrush on the west end and an old hay meadow on the east end, with some dead standing and dead/down lodge pole in the middle of the unit. A maximum of a 20 foot wide mow line along the southwestern end would be considered to help hold the burn and would be located along an existing road. The preferred method of treatment would be mechanical removal however fire would be used as an option if the mechanical method of removal is found to be enviable. Fire could also be used after the mechanical removal to help improve ground vegetation. Broadcast burning would likely be in the fall, but could happen in the spring and or summer if conditions were favorable.

Map 2



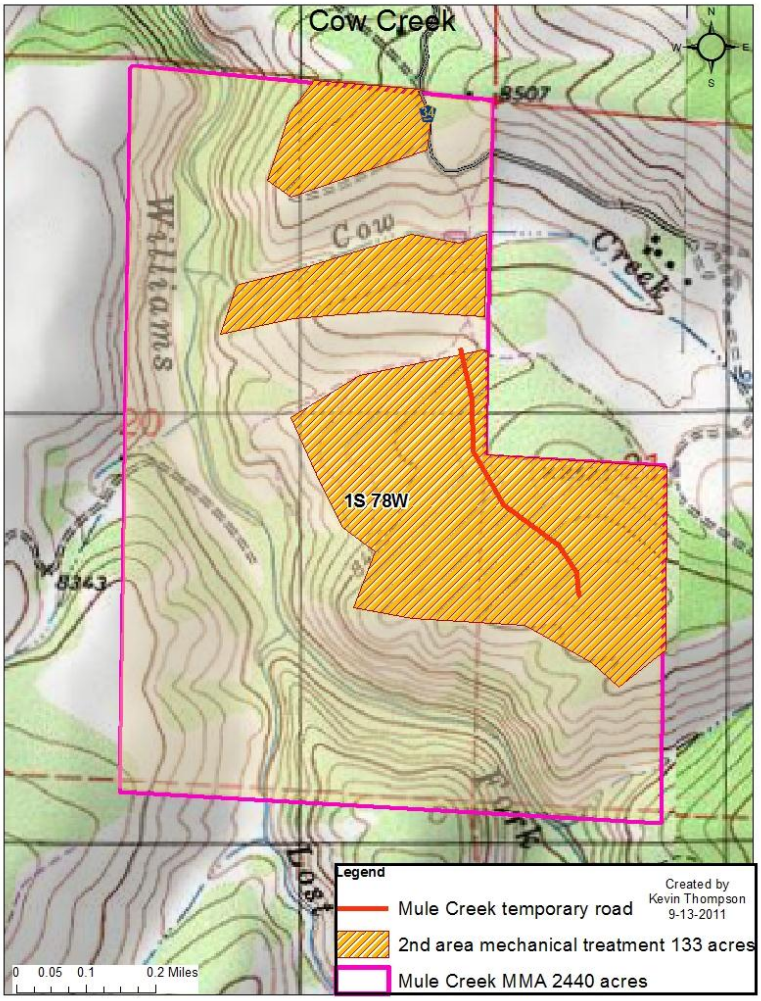
Morgan Gulch (Map 3) would include one prescribed burn unit made up of approximately 283 acres and two mechanical treatment units made up of approximately 132 acres. The two mechanical treatment areas would be looked at for salvage and or piling. The area farthest to the east would be a 300 foot wide treatment totaling about 45 acres in size. The second would be a treatment of 87 acres. A temporary road may be needed along the top of the unit for hauling the material out of the unit. No more than one mile of temporary road would be needed and would be reclaimed after completion of the project.

Map 3



Cow Creek (Map 4) would include one mechanical treatment area consisting of 133 acres. This area would be evaluated for timber salvage and or piling. A temporary road may need to be constructed for hauling the material out of the unit if it is determined that the skid would be too long. No more than a one mile of temporary road would be needed and it would be no wider than 25 feet.

Map 4



The proposed action would not exceed the total treatment acres described for the proposed project. The proposed treatments would be projected to start in 2013 and continue for multiple years. The project would be expected to be completed by 2018.

Upon completion, if approved, the project area vegetation is expected to have a treated mosaic appearance of 40-90 percent treated area versus untreated area. Post-project treatments would include noxious weed control, possible broadcast or drill seeding and erosion control measures, if needed.

The slash treatment would include hand or machine piling; although mastication, public firewood gathering, removal, and lop and scatter may also be used. Hand piling and or machine piling would be the most preferable option, without a blade, and burning by the BLM would be preferred. If mastication and lop and scatter are utilized, it is likely that broadcast burning would be used to reduce fuel loading.

Design Features of the Proposed Action:

Fire

1. All prescribed burns in the area would have signs posted on county roads and the public would be excluded from the area for public safety.

2. Contacts would be made to agencys, right-of-way (ROW) holders, authorized permittees and land owners that may be impacted as per the burn plan.

3. A news release would be issued to surrounding news outlets informing the public of when and where burn operations would occur and when temporary closures for public access may occur.

4. Smoke permits would be obtained from the Colorado Air Pollution Control Division. A burn plan would be prepared and approved prior to broadcast and pile burning operations.

5. Pile burning operations would only be conducted when there is a minimum of three inches of snow on the level at the project work site.

6. All aspects of the developed Burn Plan would be followed with approval and sign-off for each burn window of opportunity. All personnel would wear proper PPE when in the project area during burning.

7. If slash piles are burned, BLM would promptly re-vegetate burned areas with native seed to reduce the probability of weed invasion/spread.

8. Piles would be no larger than 30' tall 30' wide and 20' in length and no smaller than 15' x15' x 10' if raked or hand piled. Machine Piles that are built with a blade would be no smaller than 10' x10' x 7' and no larger than 20' x 20' x 12'. In both piling situations, burned pile locations would be treated to prevent noxious weed establishment.

Mechanical/Forestry

9. Machinery to be used includes, but not limited to: Bullhogs, Hyro-axes, Timbco, Fella-bunchers, skid steers, chainsaws, skid steers, and Fecons.

10. A news release would be issued to surrounding news outlets informing the public of when and where timber operations would occur and when temporary closures for public access may occur.

11. Tree species to be cut down would be identified by the BLM.

12. BLM would find and locate property monuments within the project boundary and flag and paint bearing trees to identify them more easily.

13. BLM would identify live Aspen, Ponderosa Pine, Englemann spruce, blue spruce, subalpine fir, lodgepole pine, and Douglas Fir trees that are to be left.

14. Mechanical treatment areas would have the product removed for salvage and or piled.

15. All trees would be cut so that the resulting stumps would not be higher than six (6) inches, measured from the ground on the uphill side of the tree.

16. All slash would be lopped and scattered to within 24 inches of the ground within all treatment units, where practical and if other project objectives are still met, to avoid excessive slash piles at landings.

17. Temporary roads and skid trails would be signed and closed by the contractor or work crews to prevent unauthorized route establishment and cross country travel. Closures methods may include scattering of slash, fencing and recontouring as necessary.

18. To help prevent unauthorized cross-country motorized or mechanized travel, buck and rail fencing would be constructed east of the main access road to the USFS boundary and along a camping area near GCR 3, while still providing areas for dispersed camping.

19. One area of lodgepole pine in the Skylark area, identified by the BLM, would not be harvested for fencing material.

Hydrology/Wildlife

20. All treatment units would be outside of drainages-ephemeral to perennial-with a minimum of 100 hundred foot buffers for perennial streams and wetlands, a 50 buffer for non-flowing drainages.

21. If an active golden eagle nest has been located by the BLM biologist prior to any project activities or by any personnel in the area during the project activities, there would immediately be a 0.25 mile no surface disturbance stipulation put into effect and a 0.5 mile seasonal restriction where no activities would be permitted December 15 through July 15.

22. Effects to understory vegetation and dense horizontal cover would be minimized to benefit snowshoe hare and lynx. Patches of trees with dense understory would be retained.

Weeds/Range

23. If burned, the burn areas would be rested for a minimum of two growing seasons. After two years, if the vegetative cover is less than measured pre-burn conditions,

then the meadows would be drill seeded (other areas broadcast seeded) and rest would continue until pre-burn percent cover is achieved. If more than 50 percent of the ground cover is consumed by the fire, then erosion control measures would be required.

24. All machinery used within the project boundary would be cleaned prior to working within the project, to help reduce the spread of noxious weeds.

25. Coordination with permittees would be made prior to any burning and or timber removal.

26. Pre and Post treatments for noxious weeds would be done to help control the spread of noxious weeds.

27. Any damage to fences during the implementation of the project would be repaired by the contractor, with the exception of prescribed fire which would be repaired by the BLM.

28. Sagebrush areas that contain higher than 5 percent rabbitbrush (*Chrysothamnusnauseosus)* cover would be identified by BLM Range personnel prior to a prescribed burn and fire ignitions would be avoid in the identified areas.

Recreation/Cultural

29. Aspen Canyon Ranch is authorized for Guided Horseback Rides and Big Game Guided Hunting and Outfitting and would be coordinated with, and informed of any timber removal or use of fire within the project area.

30. The main access road into the Skylark project area would be improved and maintained to provide safe ingress and egress for project implementation, public access and administrative access to the USFS boundary.

31. Historic structures and grave sites would be avoided through necessary avoidance measures during prescribed burning, and monitored by the project Archaeologist.

Visual Resource Management

32. Avoid digging line as fire breaks unless fire spreads outside prescribed areas and is necessary for pre-suppression.

33. Mow line would only cut grass, not sage brush. If sage brush is cut, line needs to be broken up as to not draw attention to a long straight line.

No Action Alternative:

Under the No Action Alternative, no vegetation treatments would be implemented to accomplish project objectives and no mechanical treatments would be completed. No prescribed fire would affect the area leaving no evidence of burn scars. Recreation areas and camping areas would not be affected.

There would be no vegetation management treatments to dead lodge pole pine caused by MPB. Areas that have mountain pine beetle infestations are expected to experience lodge pole pine trees falls. Hazardous fuel accumulations would not be treated. No treatments would be implemented to reduce the fire and fuel hazard, or to support work on private land.

The FRCC in the project area would likely increase. Condition Class 1 would likely increase to 2 and Condition Class 2 would likely increase to Condition Class 3. The FRCC in most of the proposed area would likely be a Condition Class 3.

ALTERNATIVES CONSIDERED BUT NOT CARRIED FORWARD:

Two options that were evaluated but found to be impractical were to only perform fire treatment or only perform harvest treatments. These alternatives were shown to be limiting in scope due to the evaluation that one cannot occur without the other, and the difficult terrain in some of the Mule Creek areas. For example, a fire without a mechanically treated perimeter in heavy timber would be very difficult to control. Conversely, harvest areas are limited in accessibility, and there are areas that are inaccessible that need to be treated by fire, therefore would result in less treatment of beetle killed landscapes. By only completing harvest treatments in sagebrush and grass areas in the Skylark area, other fuel loads would not be treated and the FRCC would still be in condition Class 2 and 3.

PLAN CONFORMANCE REVIEW: The Proposed Action is subject to and has been reviewed for conformance with the following plan (43 CFR 1610.5, BLM 1617.3):

> Name of Plan: Kremmling Resource Management Plan (RMP), Record of Decision (ROD)
>
> Date Approved: December 19, 1984; Updated February 1999
>
> Decision Number/Page: Decision 6, Pages 9 and 10, sections b. and c.
>
> Decision Language: "The planned actions will emphasize improving forest vigor and growth as well as minimizing losses caused by insects, disease, or fire." "Intensive management activities could include timber harvesting techniques, artificial regeneration, stand conversion, stand improvement, pre-commercial thinning, and commercial thinning. Limited management activities will involve primarily custodial practices such as fire protection and salvage."

The proposed project area is located in the Kremmling Field Office Fire Management Unit, described in the Northwest Colorado Fire Program Area Fire Management Plan (2011). Fire Management guidance for this unit includes:

- Reduce accumulations of hazardous fuels in the wildland-urban interface in order to protect life and property and provide for firefighter safety.
- Provide protection for known heritage sites, scenic corridor and facilities, power lines, and other similar values.

The National Fire Plan, Review and Update of the 1995 Federal Wildland Fire Management Policy (January 2001) – states in part:

> "Fire Management and Ecosystem Sustainability - The full range of fire management activities would be used to help achieve ecosystem sustainability, including its interrelated ecological, economic, and social components."

This EA was prepared in accordance with the National Environmental Policy Act (NEPA) and is in compliance with applicable regulations and laws passed subsequently, including the President's Council of Environmental Quality Regulations, US Department of Interior requirements, and guidelines listed in BLM Manual Handbook H-1790-1. The EA assesses the potential environmental impacts of the Proposed Action and reasonable alternatives and documents public participation as well as the decision making process.

AFFECTED ENVIRONMENT & ENVIRONMENTAL CONSEQUENCES

Standards for Public Land Health: In January 1997, the Colorado BLM approved the Standards for Public Land Health. These standards cover upland soils, riparian systems, plant and animal communities, special status species, and water quality. Standards describe conditions needed to sustain public land health and relate to all uses of the public lands. Because a standard exists for these five categories, a finding must be made for each of them in an environmental analysis (EA). These findings are located in specific elements listed below.

Cumulative Effects Analysis Assumptions: Cumulative effects are defined in the Council on Environmental Quality (CEQ) regulations (40 CFR 1508.7) as "...the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions." Table 1 lists the past, present, and reasonably foreseeable future actions within the area that might be affected by the Proposed Action; for this project the area considered was the Middle Williams Fork River 6th Level Watershed. However, the geographic scope used for analysis may vary for each cumulative effects issue and is described in the Affected Environment section for each resource.

Table 1. Past, Present, and Reasonably Foreseeable Actions

Action Description	STATUS		
	Past	Present	Future
Livestock Grazing	X	X	X
Recreation	X	X	X
Invasive Weed Inventory and Treatments	X	X	X
Spring or Water Developments	X	X	X
Wildfire and Emergency	X	X	X

Action Description	STATUS		
	Past	Present	Future
Stabilization and Rehabilitation			
Power Lines	X	X	
Vegetation Treatments	X	X	X

Affected Resources:

The CEQ Regulations state that NEPA documents "must concentrate on the issues that are truly significant to the action in question, rather than amassing needless detail" (40 CFR 1500.1(b)). While many issues may arise during scoping, not all of the issues raised warrant analysis in an environmental assessment (EA). Issues will be analyzed if: 1) an analysis of the issue is necessary to make a reasoned choice between alternatives, or 2) if the issue is associated with a significant direct, indirect, or cumulative impact, or where analysis is necessary to determine the significance of the impacts. Table 2 lists the resources considered and the determination as to whether they require additional analysis.

Table 2. Resources and Determination of Need for Further Analysis

Determination[1]	Resource	Rationale for Determination
Physical Resources		
PI	Air Quality	See the Air Quality Section.
NI	Geology and Minerals	There would be no impact to the geological and mineral resources of the area from either the Proposed Action or the No Action Alternative.
PI	Soil Resources*	See Soil Section and the attached Water Quality Report.
PI	Surface and Ground Water Quality*	See the Water Quality Section and the attached Water Quality Report.
Biological Resources		
PI	Wetlands and Riparian Zones*	See the Wetland Section and the attached Water Quality Report.
PI	Vegetation*	See Vegetation analysis.
PI	Invasive, Non-native Species	See Invasive species analysis.
PI	Special Status Plant and Animal Species*	See Special Status Plant and Animal Species analysis.
PI	Migratory Birds	See Migratory Birds analysis.
PI	Aquatic Wildlife*	See Aquatic Wildlife analysis.
PI	Terrestrial Wildlife*	See Terrestrial Wildlife analysis.
Heritage Resources and the Human Environment		
NI	Cultural Resources	Cultural resource Class III inventories CR-04-02, CR-05-16, and CR-13-13 have been completed for the Proposed Action. Seven historic properties 5GA4259, 5GA3004, 5GA3014, 5GA3015, 5GA3016, 5GA2315, and 5GA2316 are within or outside the

Determination[1]	Resource	Rationale for Determination
		Proposed Action and all seven sites are determined not eligible to the National Register. Sites 5GA3004, 5GA3015, 5GA2316 and 5GA4259 have flammable material associated with the sites and because of aesthetic recreational use, the sites should be protected by avoidance during mowing, logging, and burn actions. Historic site protection measures (i.e., foam) would be identified in the Burn Plan for sites 5GA3004, 5GA3015, 5GA2316 and reviewed by the burn boss and Field Office Archaeologist prior to burn implementation. Prior to logging activities site, 5GA4259 would be identified to the contractor to insure avoidance.
NP	Paleontological Resources	The project lies within a Biotitic Gneiss, Schist, and Migmatite (Metamorphic Rocks) PFYC Class 1 with a condition 3. The probability for impacting any fossils is negligible. Assessment or mitigation of paleontological resources is unnecessary. The occurrence of significant fossils is non-existent or extremely rare. These areas are very unlikely to produce vertebrate fossils or noteworthy occurrences of invertebrate or plant fossils. BLM standard "discovery" stipulation is part of the environmental assessment and is to be attached to any authorization allowing the project to proceed.
NI	Native American Religious Concerns	Tribal consultation has been initiated for the Proposed Action on December 22, 2011, and to date no tribe has identified any area of traditional cultural or spiritual concern. Tribal consultation would continue through the EA process.
NI	Visual Resources	The proposed project is within a Visual Resource Inventory (VRI) Class II area. Two fuel treatment areas (Skylark & Morgan Gulch) would be visible from County Road 3, however, by using the techniques listed above in the proposed action; the visual impacts would be short term and would decrease over time. One fuel treatment area (Cow Creek) has very low visibility from any key observation points, but use of the techniques listed above in the proposed action would reduce effects further.
NI	Hazardous or Solid Wastes	There are no quantities of wastes, hazardous or solid, located on BLM-administered lands in the proposed project area, and there would be no wastes expected to be generated as a result of the Proposed Action or No Action alternative.
PI	Fire Management	The propose action is a Fire Management action and the impacts are part of the proposed action and design features.
NI	Social and Economic Conditions	There would not be any substantial changes to local social or economic conditions with the proposed action, but the no action alternative may have an impact if there were to be a catastrophic fire event took homes or human life.
NP	Environmental Justice	According to the most recent Economic Census Bureau statistics (2009), there are minority and low income communities within the Kremmling Planning Area. There would be no direct impacts to these populations.
Resource Uses		
PI	Forest Management	See Forest Management analysis.
NI	Rangeland Management	No Impact on Morgan Gulch and Cow Creek grazing allotments.

Determination[1]	Resource	Rationale for Determination
PI	Rangeland Management	Skylark Allotment, see Rangeland Management analysis below.
PI	Floodplains, Hydrology, and Water Rights	See the Soils, Water Quality, Wetland Sections of this EA and the attached Water Quality Report.
NI	Realty Authorizations	There is one road right-of-way (ROW) for Naola Gardner (COC-48482), three power line ROWs for Mt. Parks Electric (COC-56599, COC-15418, COC-63618), one ditch for F.W. Hasty (COD-011329), one buried fiber optic line for Qwest (COC-53090) and one buried natural gas pipeline ROW for Public Service CO (COC-23293). No impacts would occur within the proposed project area.
PI	Recreation	See Recreation analysis.
PI	Access and Transportation	See Access and Transportation analysis.
NP	Prime and Unique Farmlands	There are no Prime and Unique Farmlands within the project area. The Skylark (Mule Creek) meadows were once irrigated hay meadows, and could be considered farmlands of local importance. The proposed actions do not render the meadows unable to be farmed in the future.
Special Designations		
NP	Areas of Critical Environmental Concern	No Areas of Critical Environmental Concern are present in the project area.
NP	Wilderness and Lands with Wilderness Characteristics	There are no Wilderness or Wilderness Study Areas within the area of the Proposed Action. The area was inventoried for Wilderness Characteristics in 1979 and reviewed again in 2009. The parcels do not possess Wilderness Characteristics due to their size being less than 5000 acres nor is it of sufficient size as to make practicable its preservation and use in an unimpaired condition.
NP	Wild and Scenic Rivers	There are no Wild and Scenic Rivers in the KFO.
NP	Scenic Byways	There are no Scenic Byways within the project area.

[1] NP = Not present in the area impacted by the Proposed Action or Alternatives. NI = Present, but not affected to a degree that detailed analysis is required. PI = Present with potential for impact analyzed in detail in the EA.
* Public Land Health Standard

AIR QUALITY

Affected Environment: The project area is located within the Williams Fork River valley. The valley is moderately confined and consists primarily of ranching in the lower elevations, and USFS lands in the higher elevations. The Henderson Molybdenum Mill is located upstream of the project area, and the majority of the traffic on the county roads is associated with the mill and employees who commute from the surrounding communities. There is a guest ranch operation located just south of the Morgan Gulch unit and some scattered residences near the proposed units.

The nearest towns are Parshall (8.8 miles to the northwest), Hot Sulphur Springs (9.5 miles north), Granby (14.2 miles to the northwest), and Grand Lake (27.1 miles to the northwest). In

view of the limited emission sources, the area is assumed to be meeting the national and state ambient air quality standards. Pollutants are primarily associated with wood burning at private residences, dust from unpaved roads and off-road travel, and vehicle emissions on the roads and at the mill site. There are some logging operations in the area to remove the dead lodgepole, which can also involve slash pile burning to dispose of the woody debris.

Rocky Mountain National Park is a Class 1 air quality area that is located approximately 20 miles to the northeast of the project. Class 1 areas have air quality better than the National ambient standards and are managed to prevent significant deterioration, allowing only minor increases in sulfur dioxide or total suspended particulates. Although there are concerns regarding the portion of the Park on the east side of the Continental Divide due to airborne nitrate and sulfate particles, the west side of the Park is considered to be relatively natural and not eutrophic. The prevailing winds in the area are from the west-southwest, towards the town of Granby and the national park.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: There are no air quality monitoring stations near the project area, so there is not sufficient monitoring data to make a formal finding on the air quality impacts associated with the proposed action. The Proposed Action would result in some increased emissions. Prescribed burns produce reactive organic compounds, nitrogen oxides, carbon monoxide, inhalable particulate matter (PM_{10}), fine particulate matter ($PM_{2.5}$), and greenhouse gas pollutants. Vehicle and machine engine combustion also produces the same categories of emissions as prescribed fire. In addition, vehicle use on unpaved roads and cross-country travel generate fugitive dust that contains PM_{10} and $PM_{2.5,}$ which can also be increased from burned areas until revegetation successfully reduces wind erosion to pre-burn levels. The emissions from vehicles and equipment would be of small quantity and have a short duration. Emissions from a fire can cause irritation to the eyes, nose, and mouth and can reduce visibility. Due to the distances involved, private residences immediately north of project areas would be the most likely to be affected. The permit to burn requires prescribed burns to occur during the most favorable atmospheric conditions to increase smoke dispersion and lessen impacts to air quality and nearby residents. The Morgan Gulch burn would not be expected to decrease visibility on County Road 3. The Skylark burn could result in some smoke on County Road 3 during burns, and increased dust until revegetation stabilizes the burns. The actual occurrence, duration, frequency, and amount are dependent on the intensity of the burn, soil moisture and vegetative cover, and subsequent weather conditions. It is not expected to pose a safety problem to drivers.

Cumulative Effects: The proposed treatment areas are a very small fraction of the Williams Fork valley acreage, and emissions from the proposed treatments are unlikely to be measurable impacts to air quality. The entire area of Grand County, however, does contain many acres of dead lodgepole pine that are going to be or have already been logged or burned. These actions, however, are considered to be prescriptive in reducing the emissions and air quality impacts that could occur if a large wildfire occurred. The State of Colorado, in issuing the burn permit, considers proposed prescribed burns in an area and places restrictions on the permit to help reduce the negative cumulative effect in a geographical area. Impacts from a prescribed fire are generally of short duration and do not usually result in any long term impacts.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: Under the No Action Alternative, there would be no impact to the existing air quality from the public lands unless a wildfire occurred. Actual air quality impacts from a wildfire would be dependent on the many variables of the fire and conditions at the time of the fire. There is a higher potential for increased emissions and longer duration from a wildfire than with the proposed action, and the smoke could impact the nearby home owners. Emissions from a wildfire impact air quality for the duration of the fire, but do not result in long-term air quality degradation.

Cumulative Effects: By not treating the public land properties, there would continue to be dead and downed material that could contribute to a large wildfire. A wildfire in the Williams Fork area could produce much greater pollutant volumes.

Mitigation: None

SOIL RESOURCES

Affected Environment: Soil information is from the Grand County Soil Survey by the Natural Resource Conservation Service (NRCS). The soils in the proposed project area are generally formed in glacial till and are generally deep with good permeability. The attached Water Quality report (Attachment 4) details the soils in each treatment unit and includes soil maps. The soils are in good condition and are considered to be meeting the Land Health Standards. In general, there are no known areas of soil concerns or accelerated erosion. The Morgan Gulch and Cow Creek units are more moderately sloped with steeper slopes leading to the adjacent waterways. In the Morgan Gulch area, there are areas of slumps, despite very good vegetative cover.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: Mechanical treatments can cause short-term adverse impacts such as soil compaction and removal of protective litter and vegetation. The soils within the Skylark unit have subsurface textures that are very fine and could be easily compacted. Accessing and treating the soils when they are not saturated greatly reduces compaction. Avoiding the creation of access routes due to repeated trips also helps reduce compaction.

Immediately after treatment, soils can be exposed to greater wind and water erosion, depending on the amount of vegetation removed. If the prescribed fires are intense, there can be changes in soil chemistry and water repellency can result. Managing for a less intense fire and doing fire rehabilitation in areas where soil damage occurs can help offset these concerns. Most of the mapped soil units within the project area have a high tolerance to erosion. This means that the overall soil fertility is maintained despite low to moderate amounts of erosion.

Comparing the pre-treatment and modeled post burn soil loss on Skylark, there was a large increase (more than doubled) in expected soil loss. Except for some individual hillsides with steeper slopes, however, the overall predicted average soil loss was within the soil's erosion tolerance. Soils within the Morgan Creek burn and treatment units have high erosion hazards,

primarily due to steep slopes and the soils' erodibility. The modeled average annual soil loss for a moderate or high intensity fire exceeded the soil's erosion tolerance. In general, the soils within the burn unit had "moderate" limitations for fire use. This indicates the burn would have fair results, with some erosion likely and that erosion control measures may be needed. The histic cryaquolls (a wetland soil) of the drainages were the only soils with "slight" limitations for fire. Although these soils can tolerate a burn without high erosion loss, burning the buffer around them (or them), results in a very high amount of sediment to be transported to live water. For the model, a moderate intensity fire assumed the north facing slopes still had 90 percent of their pre-burn ground cover, and the other two slopes had 45 percent of their pre-burn ground cover. Managing for a less intense fire and being prepared to complete erosion control measures on areas that burned more completely or are on steep pitches should help reduce soil loss. The model runs showed vegetative buffers at the toe of the slope and mosaic patterns helped reduce soil loss and sediment yield for all treatments.

The proposed treatments could also result in an increase in the protective ground cover, either by lop and scattering of slash or the understory's response to the treatment. This increased cover helps slow runoff and increase infiltration into the soil, provides organic matter and nutrients for incorporation into the soil, and reduces soil erosion. In the long term, vegetative treatments could benefit soils in the area by improving cover and increasing plant diversity.

Cumulative Effects: The treatments represent small areas that could impact that site's soils. Providing rest from recreational use and livestock grazing until ground vegetation stabilizes the site would ensure that other uses do not add to the negative impacts (erosion and compaction) on a treated area. Once the vegetation is established, the overall conditions would be similar or improved to pre-treatment conditions.

Efforts by surrounding landowners to reduce the fire hazards on their property combined with the proposed treatments could help reduce the fire intensity that these project areas would experience if a wildfire were to occur. This would help reduce impacts to the soils' productivity and stability, and increase the long term soil health on the public lands.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: Under the No Action Alternative, soil conditions would not be expected to change. The existing vegetative conditions provide for soil protection and productivity, with good nutrient and water cycling. The opportunity to reduce the size and intensity of a fire would be foregone in this area, and if one occurred, there could be significant soil loss depending on the soil conditions at the time of the fire and the fire's intensity. A large high intensity fire could result in soil sterilization or hydrophobic soil layers, and larger acreages of unprotected exposed soils. If fire suppression was to occur and tactics were implemented on public lands, soils could be compacted and/or displaced by heavy equipment and vehicle access and fireline construction.

Cumulative Effects: On a landscape scale, adjacent landowners' actions are not directly impacting the soils within the project, and foregoing the proposed treatments would not affect their soils. Indirectly, by foregoing the reduction of the public lands' fuel hazards, there is a

higher potential for an intense wildfire that could not only damage the public land soils, but could also burn the private lands and negatively impact their soils.

Mitigation: None

Finding on the Public Land Health Standard #1 for Upland Soils: The soils are currently meeting the Land Health Standard for soils. Under the Proposed action, there is the potential for areas of increased soil erosion, and for some small areas to exceed the area's soil tolerance for erosion. If this occurs, seeding and erosion control measures can remediate these areas. Overall, the treatments would not hinder the project areas' ability to meet or move towards the Standard and support long term soil health. The No Action Alternative would not affect the area's ability to continue to meet the Standard, unless a wildfire occurred in the area.

SURFACE & GROUND WATER QUALITY

Affected Environment: The proposed action requires an assessment of compliance with the Clean Water Act and the Colorado Land Health Standards. The possible impacts to the affected watersheds and the potential impacts to water quality are discussed in more detail in the attached Water Quality Report- Attachment 3. The report provides the specific soils, runoff pathways, and physical conditions of each treatment area.

The entire project is within the Middle Williams Fork 6th order watershed, and includes the perennial streams of Mule Creek (tributary to Lost Creek), Morgan Gulch, and the Williams Fork River. Cow Creek is an intermittent drainage but includes a perennial impoundment that supports trout, as do all the streams. The only known groundwater sources within the project's boundaries are two springs on private lands in Morgan Gulch (see Map in Water Quality Report) that are used for domestic water. Nearby residences are on well water that would not be affected by the proposed treatments. The streams are classified for water supply, agriculture, primary contact recreation, and Class 1 cold water aquatic life uses, and are considered to be supporting these uses. There are no known water quality concerns. Downstream of the Skylark and Morgan Gulch properties are agricultural diversions from Lost Creek and the Williams Fork River.

In 2011, Morgan Gulch experienced very large runoff and the stream appears to have "blown out". On the lower segment of the stream, an undersized culvert had been installed, which ended up getting plugged due to the large amount of material being transported by the stream. When the culvert plugged and created a dam, the stream deposited a large load of silt, sand, gravels, and cobbles across the uplands over one foot deep. Surveying the stream in 2012, no hill slope failures or specific problem areas were found on BLM administered lands. A failed beaver dam, channel erosion, or a hill slope failure in the headwaters on USFS lands could have been the debris source.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: The attached Water Quality Report gives additional detail on modeling results that helped calculate the magnitude of expected runoff and sediment transport

changes that the proposed actions could cause. The Proposed Action would primarily remove the overstory vegetation, especially in the areas proposed for mechanical treatment only. This would result in few impacts to surface water quality, especially with the proposed vegetative buffers. Mechanical or manual vegetative removal could result in some localized short-term soil compaction or erosion that could increase the sediment delivery to the streams. Avoiding the creation of roads within the units and not working during periods of wet soil conditions would help reduce the compaction that increases runoff from the treatments.

The potential for water quality impacts from the burns is dependent on fire intensity and the specific hill slope. Using The Geo-spatial interface for the Water Erosion Prediction Project (GeoWEPP) to model the hill slopes from a 30 m cell digital elevation model (DEM), and varying the amount of ground cover removed in the fire, sediment delivery from the various hill slopes were modeled. The Skylark Unit 1 burn greatly increased the sediment delivery to Mule Creek, but the total average volume was still fairly low. With the vegetative buffer, there might be some increased deposition within the creek, but it would not be expected to persist after the first year as vegetation would quickly stabilize the exposed soils. Even though Units 1 and 2 represent a very small percentage of the acreage in the Lost Creek drainage, burning Units 1 and 2 doubled the sediment load in Lost Creek, upstream from the County Road 3 crossing. The vegetative buffers, however, resulted in the sediments being deposited outside of the stream channel. With the proposed design features, downstream water users on Lost Creek should not experience water quality impacts.

In the Morgan Gulch unit, the slopes were steeper and the soils were coarser in texture. A fifty foot buffer resulted in the expected sediments being deposited within the buffer area, reducing the direct deposit into the tributary channel. This tributary channel, however, occurs within the center of the burn unit. If fire tactics do not support a buffer within the unit, then post burn erosion control may be necessary, depending on the intensity/extent of the burn, to protect the drainage. The southern portion of the Morgan Gulch burn unit extends into the Morgan Gulch catchment. A model run was done to simulate this portion of the burn combined with the two mechanical treatment units. A 100 foot buffer appeared sufficient to protect Morgan Gulch from the increased soil loss of the burn unit.

There would be no expected impact to ground water. The two spring sources are near the edges of the Morgan Gulch burn and would be buffered to protect the surface uses of the water.

Cumulative Effects: All of the treatment areas are tributary to the Williams Fork River. Although the Williams Fork is heavily diverted upstream of the project area, it is still a large body of water. Average flows in June peak around 500 cfs and drop to 150 cfs by mid-July. If the proposed treatments were to all occur within the same growing season, there could be an increase in sediment to the Williams Fork River below the Lost Creek confluence. This would be the cumulative sediment loads from Skylark and Morgan Gulch treatments. If the treatments were done early in the growing season, summer thunderstorms would have the greatest potential of carrying sediment to the river, and would be diluted by the spring runoff. Irrigation diversions downstream of the projects on the Williams Fork River would not be impacted if buffers are observed. If the treatments were to occur in the fall, the river's flows are approximately 40 cfs and could result in more deposition, as the flows might be insufficient to carry the additional

sediment. The vegetative buffers and post treatment erosion control, however, would reduce the potential for measurable sediment loads from the treatments.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: Under the No Action alternative, the existing conditions would be expected to continue. The areas would continue to meet the Land Health Standard for water quality. If a wildfire did occur, there would be the potential for water quality impacts. Impacts to water resources related to wildland fires are complex and involve changes in nutrient cycling, water infiltration and runoff, and erosion potential. The degree of impacts are difficult to predict, as they are a function of the severity of the burn, the vegetation community's fire adaptability, the fuel condition class, and soil conditions prior to the burn. High-severity fires can completely remove vegetation and soil-surface cover, which drastically increases the potential for wind and water erosion and sedimentation into streams. Natural fire ignitions could also require suppression to protect other resource values or private lands. Suppression tactics can remove vegetation in creating fire breaks, compact and displace soil due to vehicles and heavy equipment, and release chemical retardant and eroded soils to surface waters. Water quality degradation following high-severity burns would be much greater due to the associated vegetation cover loss and intense deep heating, resulting in soil sterilization and the creation of hydrophobic surface layers. The result could be increased post-fire runoff and sedimentation in nearby waterways.

Cumulative Effects: The Upper Colorado Watershed Assessment (JW Associates, Inc. 2009) prioritized the Upper Colorado 6th order watersheds based upon their "risks of generating flooding, debris flows, and increased sediment yields following wildfires that could have impacts on water supplies". The Middle Williams Fork watershed, where the project is located, was rated as a category 4 watershed, on a scale of one to five. The Henderson Mill areas upstream and the Williams Fork Reservoir downstream were the greatest "zones of concern" within the watershed, due to the infrastructure and the impounded water supplies. The middle watershed, however, had a high wildfire risk and a moderate flooding/debris flow ranking. The No Action alternative would forego an opportunity to help reduce the wildfire risk, and help moderate the impacts to the Williams Fork River's and other streams' water quality if a wildfire were to occur.

Mitigation: None

Finding on the Public Land Health Standard #5 for Water Quality: The proposed project areas are considered to be meeting the Land Health Standard for Water Quality. Under the Proposed Action, there may be impacts to water quality, but in the long term, would not be expected to alter the area's ability to meet the standard. The No Action Alternative would continue the present conditions, but could leave the watershed more vulnerable to water quality impacts from a wildfire, if one were to occur.

WETLANDS AND RIPARIAN ZONES

Affected Environment: The proposed treatments are located within the uplands and border the riparian areas of Mule Creek, Morgan Gulch, Cow Creek and the wetland vegetation surrounding the two springs on private lands (Morgan Gulch). The Morgan Gulch burn unit also straddles an

intermittent drainage that supports wetland soils and some wetland vegetation. Mule Creek has the widest riparian area, with widths varying from 70 feet to 140 feet. The willow/sedge community has both wildlife and livestock use, and since the upland meadows are no longer irrigated, use tends to concentrate along the creek. There are areas with species such as Kentucky bluegrass, dandelion, thistle, and dutch white clover that are evidence of heavier grazing use. The BLM established a Multiple Indicator Monitoring (MIM) transect in 2010 to help monitor riparian habitat trend, with the management objectives of reducing width to depth ratios of the stream and to stabilize streambanks. In areas where dense willows protect the stream from use, the stream width narrows to approximately 1.2 feet. In openings, sedges and bluegrass dominate, and the stream widens to 4.4-5 feet, creating shallow warmer water with no pool habitat.

Morgan Gulch is a smaller perennial stream with a willow/alder community that generally has a lodgepole pine overstory and some spruce/fir. There are a few beaver ponds in the middle section of the public segment, and use is primarily wildlife. The trail adjacent to the stream is heavily used during the fall hunting seasons, primarily for USFS land access.

Cow Creek is an intermittent drainage that supports a willow community. In 1978, the BLM constructed a livestock impoundment on the drainage, which now provides perennial water and supports some small brook trout. Livestock and wildlife use the area, but livestock use tends to be light and well dispersed across the allotment. The pond and drainage do not experience animals "loafing" in the wetland community.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: The Proposed Treatments would not directly affect the wetland and riparian areas. Any needed firelines or access roads would be constructed outside of the riparian/wetland vegetation. By having unburned vegetation at the tow of the slope, sediment deposition would be reduced in the wetland vegetation. If excessive sediment was deposited in the riparian zone, then it would be quickly stabilized by the underlying vegetation growing up through it or removed by successive runoff events.

In the Morgan Gulch burn, the intermittent drainage is in the center of the unit. If a buffer for the drainage is not maintained, then the area could be burned. Depending on the time of year and site conditions, this could result in small spots of burned vegetation in the drainage, or a complete consumption of the vegetation. If an intense fire consumed the wetland vegetation in the unnamed tributary, then erosion control measures would be needed to be in place prior to any runoff generating event. A very hot fire could steam the wet soils and alter the soil's biotic community and physical properties.

In general, the tributary's wetland vegetation would recover quickly except for the extreme fire event. Riparian zones occur within the floodplain of the channel, and are more gently sloping than the surrounding uplands. Sediment deposition within the riparian zone helps protect water quality and build the alluvium.

Cumulative Effects: If all of the treatments occurred during the same growing season, there would be no direct cumulative effects to the riparian or wetland zones of the adjacent waters or the downstream segment of Lost Creek and the Williams Fork River. By resting the Skylark burn areas until vegetation is established, there would not be increased utilization by livestock in the riparian zone and trails created by horseback riders wishing to avoid the burns. Once the grass and forbs revegetate the burns, livestock and wildlife use would increase in the uplands, being drawn to the new forage away from the riparian zone. This would benefit the management objectives for Mule Creek in improving riparian conditions. The proposed action, when combined with the fuels reduction efforts of adjacent landowners, helps reduce the potential of a severe wildfire burning through the riparian zones.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: Under the No Action Alternative, the existing conditions would be expected to continue. The riparian and wetland areas would continue to be meeting the standard, but an opportunity to draw livestock to the uplands of the Skylark area would not be pursued.

By forgoing treatment of the upland forests adjacent to the riparian areas, however, there is a higher potential that a severe wildfire could burn through the riparian zones in the future. The amount of deposition from the adjacent uplands and from within the riparian zone itself could overwhelm the system. The surrounding areas would generate larger runoff events that could alter the channels and floodplains, and result in channel erosion and the loss of riparian habitat.

Cumulative Effects: Selecting forgoing treating the proposed units would not greatly affect the riparian zones. If a severe wildfire occurred in the future, private and public riparian zones could experience heavy sediment loads and habitat loss due to the amount of hazardous fuels in untreated areas.

Mitigation: None

Finding on the Public Land Health Standard #2 for Riparian Systems: The Project area includes riparian zones that are considered to be meeting the Land Health Standard, although there are areas of concern along Mule Creek. The Proposed Actions could provide additional upland forage that would support the management objectives for improving the stream and riparian zone. The No Action alternative would not provide this opportunity, but would not hinder the areas from continuing to meet the Standard.

VEGETATION

Affected Environment: The meadow areas of all three treatment areas contain a mix of Mountain Big Sagebrush (*Artemisia tridentata var. vaseyana*), a variety of perennial bunchgrasses, including but not limitied to Thurber and Idaho Fescue, (*Festsuca thurberiana and idahoensis*), bluebunch wheatgrass (*Pseudoregnaria spicata*), and nodding brome (*Bromus anomalus*). Other shrubs include bitterbrush (*Purshia tridentata*), Snowberry (*Symphoricarpos oreophilus*), Serviceberry (*Amelanchier alnifolia*) and Buckwheat (*Eriognum umbelliferum*). Some common forbs include Balsamroot (*Balsamorhiza sagittata*), and Yarrow (*Achillea millifolium*). The

meadow areas of the Skylark unit are sagebrush that was treated and then seeded with smoothe brome. Also in the meadow are other pasture grasses, such as timothy, meadow barley and slender wheatgrass . This plant community transitions into the woodlands containing Aspen (*Populus tremuloides*) and Lodgepole pine (*Pinus contorta*). For a description of forest and woodland vegetation see analysis below in regards to forest management.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: The proposed action would open the overstory canopy, reduce competition for water and nutrients and result in an increase in cover of grasses and forbs, thus an increase in surface litter. An increase in surface litter provides soil surface protection from accelerated surface erosion. Opening the canopy in aspen stands would improve the vigor or the aspen clones, since quaking aspen is not shade tolerant. The removal of the dead and down lodgepole would allow for regeneration of healthy stands of lodgepole pine.

Cumulative Effects: The proposed action and subsequent treatments would remove the decadent and down trees and result in increased vigor and structural diversity of the units. This would improve habitat for wildlife and forage for livestock. The effects of fire on the meadows would be to improve the nutritional content, quantity and availability of forage by stimulating crown growth, recycling nutrients, and removal of "wolfy" plant materials. Fire creates vegetative diversity, and increases the amount of green forage available for consumption by livestock and wildlife.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: Under the No Action Alternative, the existing conditions would remain the same. Wildfire dangers would remain high, and the areas would remain inaccessible due to the downed trees. Danger from falling trees to users of the area including hunters, recreationists, and livestock operators would remain high until all the dead lodgepole are down or removed. If not removed, the dead lodgepole will remain on the ground for decade before decomposing.

Cumulative Effects: In the long term, the cumulative impacts of the No Action would result in no reduction in fuel loads and the possibility of catastrophic wildfire would remain high.

Mitigation: None

Finding on the Public Land Health Standard #3 for Plant and Animal Communities:
These areas have not been assessed for Land Health Standards, but are generally considered to be meeting due to their abundant rainfall, minimal (if any) livestock grazing and moderate impacts from recreation.

INVASIVE, NON-NATIVE SPECIES

Affected Environment: There are known noxious plants located in the Skylark allotment. These species include Musk thistle (*Carduus nutans*), Canada thistle (*Cirsium arvense*), Bull thistle

(*Cirsium vulgare*), Houndstongue (*Cynoglossum officinal*e) and sporadic Yellow toadflax (*Linaria vulgaris*). Most thistle species occur within the dead and down beetle kill timber within the project area. In some areas the noxious thistle has flourished due to loss of canopy and disturbance from recreational and grazing activity. Access to these beetle kill timber areas has been limited due to the dead and down timber in which treatment has been difficult or impossible in some cases. Houndstongue and Yellow toadflax mostly occur within the associated meadows in which the populations are minimal due to continued efforts to spray in these open areas.

Within the Morgan Gulch area there was a small population's of Dalmatian toadflax (*Linaria dalmatica*) found on the southern end of the allotment where minimal disturbance would occur. Some populations of Canada thistle (*Cirsium arvense*) and Musk thistle (*Carduus nutans*) occur within the timber area. An extensive inventory has not completed throughout the entire Morgan Gulch project area for noxious weeds.

There are no known invasive, noxious weeds located within Cow Creek project area. A complete inventory would be done in the spring of 2013 to assess the condition or populations of noxious weeds within the project area.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: Any type of human activity, soil or vegetation can provide avenues for the introduction of spread of invasive species. Both natural and prescribed fire and mechanical treatments can cause disturbance and a potential for an increase in noxious invasive species initially. However, the removal of the dead and down timber would indirectly allow for better access into these areas to perform treatments and reseeding.

With proper chemical treatments and reseeding efforts the noxious weeds should be reduced which would promote a better herbaceous community within the forested areas. The removal of dead timber would also decrease the potential for a catastrophic fire in which immense disturbance could occur. This could contribute exponentially to the introduction or spread of the noxious invasive species within the parcels. Within the open meadows the impact would be minimal except for the anticipated disturbance from machinery being moved throughout the proposed project area.

Cumulative Effects: Past actions have been focused mostly on the Skylark allotment, which has focused on treatments in the open meadows within the parcel. There have also been some successful treatments for invasive species within the forested areas within the past 6 to 8 years. Presently, the BLM in cooperating with its partners, has chemical treated the Skylark allotment for noxious weeds and would continue to do so in the future. The initial disturbance may increase the spread of invasive noxious weeds throughout parcels. The removal of downed trees would increase access for treatment which would, in the future, provide an avenue for more successful eradication of present invasive species. The BLM would continue treatments and monitoring of noxious weeds into the future.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: No prescribed fire or mechanical treatment would take place within parcels in which only existing recreation and grazing disturbance activities would take place. Existing conditions would remain the same in which access to timber areas would remain limited and treatment of invasive populations would remain difficult. The increased threat of a larger more destructive fire would remain in which more significant disturbances may occur.

Cumulative Effects: Past and current actions would remain the same in which access into timber areas would be limited, therefore treatment success would be affected. Future noxious weed populations may increase by either a more destructive natural fire or from the lack of the ability to treat expanding populations. The BLM would continue treatments and monitoring of noxious weeds into the future.

Mitigation: None

SPECIAL STATUS PLANT and ANIMAL SPECIES

Affected Environment: Approximately 87 acres of the Morgan Gulch unit, identified for mechanical treatment, is within habitat for Canada lynx (*Lynx canadensis*), a federally threatened species. The project falls within the Williams Fork Lynx Analysis Unit (LAU). An LAU is a project analysis unit upon which direct, indirect, and cumulative effects analyses are evaluated for Canada lynx. An LAU provides a constant area for comparison of effects to lynx over time. While an LAU is not intended to depict an actual lynx home range, LAU's were established to approximate the size of area needed by an individual lynx.

Bald eagles, delisted from threatened status and added as a BLM-designated Sensitive Species, utilize the NE portion of section 20, of the Morgan gulch area, as winter range and winter foraging. No known nests are located within 0.5 miles of the project area.

There are no known occurrences or habitat for special status plants in the proposed project area.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: No federally endangered species would be affected by the proposed project.

Canada lynx: Canada lynx were addressed in a Biological Assessment (BA) February 28 2013, which is on file in the Kremmling Field Office. This BA determined the proposed project "may affect but is not likely to adversely affect" Canada lynx. This determination was made using the lynx programmatic screens and meets all of the conditions of the September 8, 2010, Programmatic Consultation Agreement for Canada Lynx in Colorado between the BLM and Fish and Wildlife Service and Blanket Section 7 Concurrence. In summary, the project would result in temporary disturbances, changes in vegetative structure, and reduced foraging opportunities; however, it would not result in additional lynx habitat moving to an unsuitable condition. The project would remove dead and dying trees and avoid impacts to snowshoe hare (the main prey item of lynx) habitat.

Bald eagle: Activities conducted during the nesting season for bald eagles, November 15 to July 31, are expected to have no impact since no nests are within 0.5 miles of the project area. Because the proposed action involves relatively short-term disturbance within a small area treated each year, impacts to foraging behavior are not expected to occur. The proposed project would likely benefit bald eagle prey species since it would open the lodgepole pine habitat and allow grasses, forbs, and shrubs to establish. As cover and food for small mammals increase, the prey base for bald eagles is also expected to increase.

Cumulative Effects: No irreversible or irretrievable impacts are expected to occur as a result of the Proposed Action. Although private and USFS lands adjoin the proposed project area, none of the timber harvest activities which have been completed or are planned for the near future would downgrade the "Other" lynx habitat category. Numerous acres of "Other" lynx habitat, denning habitat, and winter foraging habitat are available to lynx within the Williams Fork LAU or adjoining LAUs. No future projects which would downgrade any of these lynx habitat types are likely to occur in the future. As a result of these factors, the proposed project would not cause cumulative effects which would be adverse to Canada lynx within the Williams Fork LAU, adjoining LAU's, or on adjoining private and USFS land.

The proposed action and subsequent treatments would remove the decadent and down trees and result in increased vigor and structural diversity of the units. This would improve habitat for lynx and their prey base. Fire creates vegetative diversity, and increases the amount of green forage and cover available for snowshoe hare and other prey species.

There are no anticipated cumulative effects to lynx as a result of non-federal actions occurring within this LAU. Non-federal actions are not anticipated to affect the condition of lynx habitat in the LAU nor are they likely to influence Canada lynx.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects:
Canada lynx: The No Action Alternative would not change the structure of the vegetation in the project area and would make the area more susceptible to catastrophic wildfire. With this alternative, ground vegetation would continue to decrease resulting in less desirable conditions for lynx prey species.

Bald eagle: No impacts to Bald eagle are expected to occur as a result of the No Action Alternative.

Cumulative Effects: No cumulative or irreversible impacts are expected to occur as a result of the No Action Alternative.

Mitigation: None.

Finding on the Public Land Health Standard #4 for Special Status Species: Neither the Proposed Action or the No Action Alternative would prevent the area from meeting this standard.

MIGRATORY BIRDS

Affected Environment: A variety of migratory bird species, primarily birds of prey and songbirds, have been observed in the proposed project area. Surveys conducted in 1994 by the Colorado Breeding Bird Atlas Partnership recorded many species including American Kestrel, Red-tailed hawk, Golden Eagle, Mountain Chickadee, Gray Jay, Hairy Woodpecker, Townsend's Solitaire, Western Wood-Pewee, Red-naped Sapsucker, Hammond's Flycatcher, and Northern Flicker.

Only one species has been identified by the U.S. Fish and Wildlife Service as a Bird of Conservation Concern: the Golden Eagle. Golden Eagles would likely nest in cliffs or in large trees in or adjacent to the project area and forage in the open sagebrush habitat and meadows adjacent to the proposed project.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: Activities conducted outside the breeding season, May 15 to July 15, would have no potential effect on reproductive functions of migratory birds. Prescribed fire and other treatments described in the Proposed Action that occur during this time period pose a strong, but declining risk of disrupting active nests and would have potential to adversely impact migratory bird habitat. Activities would likely result in destruction of active nests and direct mortality of individuals. As the breeding season progresses, risk to individuals decreases as nestlings gain the ability to fly and escape threats. Because the proposed action involves relatively short-term disturbance within a small area per year, the ultimate consequence of nest disruption is greatly reduced. Pairs disturbed early in the nesting sequence would likely have sufficient time to re-nest, whereas those pairs disturbed later in the season (having higher nest site fidelity) would be increasingly less prone to nest abandonment or long absences from eggs or chicks. By assuming that operations would be concurrent with the nesting season, these numbers represent higher end impacts. Regardless, these impacts would be very confined, temporary, and would represent a negligible effect on breeding bird populations at the local landscape level. Any impacts, if any, to golden eagles would be avoided as per the design features.

The proposed project would likely benefit ground nesting species since it would open the lodgepole pine habitat and allow grasses, forbs, and shrubs to establish. Cover for ground nesting species and food for all species would increase as a result of the prescribed fire and mechanical treatments. In addition, the prey base for predatory species such as red-tail hawks and golden eagles is also expected to increase as more food is available for squirrels, mice, and other small mammals.

Cumulative Effects: No irreversible or irretrievable impacts are expected to occur as a result of the Proposed Action. The proposed action and subsequent treatments would remove the decadent and down trees and result in increased vigor and structural diversity of the units. This would improve habitat for migratory birds and their prey base. The effects of fire on the meadows would improve the nutritional content, quantity and availability of forage and cover by stimulating crown growth, recycling nutrients, and removal of “wolfy” plant materials. Fire

creates vegetative diversity, and increases the amount of forage and cover available for migratory birds.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: The No Action Alternative would not change the structure of the vegetation in the project area and would make the area more susceptible to catastrophic fire. Catastrophic fire could result in a long-term change in the habitat, which could adversely impact some tree-nesting species since a fire would likely remove more trees than the proposed project.

Cumulative Effects: No cumulative or irreversible impacts are expected to occur as a result of the No Action Alternative.

Mitigation: None.

AQUATIC WILDLIFE

Affected Environment: The proposed project is adjacent to the Williams Fork River, Lost Creek, and Morgan Gulch which support an abundant amount of aquatic wildlife, including coldwater fish, ducks, geese, beavers, muskrats, and chorus frogs. Surveying Morgan Gulch in 2012, an apparently healthy brook trout population was observed of various age classes.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: The proposed fire and fuels activities could increase runoff and sedimentation in the drainages, and subsequently the Williams Fork River, Lost Creek, and Morgan Gulch (see also Water Quality and Soils sections). An increase in sedimentation could negatively impact habitat quality for aquatic wildlife by reducing water quality. For example, increased sedimentation can alter pH and decrease dissolved oxygen, which directly impacts fish, aquatic insects and aquatic plants. Sediment depositions also cement the gravel beds used for spawning, reducing the oxygenation of the spawning beds. These species are part of the food chain on which other aquatic wildlife (amphibians, waterfowl, beavers, muskrats) depend to survive.

Cumulative Effects: No irreversible or irretrievable impacts are expected to occur as a result of the Proposed Action. Depending on the time of year when the treatments occur, sedimentation could negatively impact habitat quality for aquatic wildlife by reducing water quality (see also Water Quality and Soils sections). The vegetative buffers and post treatment erosion control, however, would reduce the potential for measurable sediment loads from the treatments.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: Under the No Action alternative, the existing conditions would be expected to continue and the area would be more susceptible to catastrophic fire. If a wildfire occurred in the project area, there would be a much higher potential for large sediment loads to be deposited in the streams, impacting water quality and aquatic habitat. Heavy sediment loads

could fill pools and spawning gravels. A wildfire could burn a large percentage of the project area, leaving few buffer strips of unburned vegetation to slow runoff and trap sediments.

Cumulative Effects: No cumulative or irreversible impacts are expected to occur as a result of the No Action Alternative.

Mitigation: None.

Finding on the Public Land Health Standard #3 for Plant and Animal Communities: Neither the Proposed Action or the No Action Alternative would prevent the area from meeting this standard.

TERRESTRIAL WILDLIFE

Affected Environment: A variety of upland wildlife depend on the habitat within and adjacent to the proposed project area. Rocky Mountain elk use the area yearlong, while Mule deer use most of the area primarily in summer and portions of section 20, of the Morgan Gulch area, in the winter. None of the project area is identified as critical winter range for elk or deer however the Cow Creek area is identified as an elk winter concentration area. Moose utilize the project area primarily in summer. Cougar, black bear, badgers, coyotes, cottontail rabbits, and a variety of small rodents live in the area on a yearlong basis.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: Wildlife species using the project area would likely be temporarily displaced during project activities, especially during winter when animals are more concentrated and food is scarce. However, these animals would use adjacent undisturbed habitat and return to the project area following completion of prescribed fire/fuels operations. The proposed project would benefit wildlife in the area by opening the lodgepole pine habitat which would facilitate understory vegetation by allowing more sunlight and moisture to reach the ground. A substantial increase in ground vegetation is anticipated after the proposed project, resulting in more cover and food for ground-dwelling birds and mammals.

Cumulative Effects: No irreversible or irretrievable impacts are expected to occur as a result of the Proposed Action. The proposed action and subsequent treatments would remove the decadent and down trees and result in increased vigor and structural diversity of the units. This would improve habitat for terrestrial wildlife and their prey base. The effects of fire on the meadows would improve the nutritional content, quantity and availability of forage and cover by stimulating crown growth, recycling nutrients, and removal of "wolfy" plant materials. Fire creates vegetative diversity, and increases the amount of forage and cover available for terrestrial wildlife.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: The No Action Alternative would not change the structure of the vegetation in the project area and would make the area more susceptible to a large-scale wildfire. This could result in a long-term change in habitat on a large scale, which for the short term

would be detrimental to most species dependent on the lodgepole pine forest. With no action, ground vegetation would decrease, shaded by dead and fallen timber. Wildlife use of the area could decrease since less cover and food would be available.

Cumulative Effects: No cumulative or irreversible impacts are expected to occur as a result of the No Action Alternative.

Mitigation: None.

Finding on the Public Land Health Standard #3 for Plant and Animal Communities: Neither the Proposed Action or the No Action Alternative would prevent the area from meeting this standard.

FOREST MANAGEMENT

Affected Environment: There are approximately 1,200 acres of forested land within the 2,440 acre project area. Lodgepole pine is the most extensive forest cover type in the analysis area, although there is a small percentage of blue spruce, Englemann spruce, subalpine fir, aspen, and Douglas fir. The majority of forested lodgepole acres are on the northwest slopes with aspen growing in drainages or in isolated patches. The spruce trees tend to grow in wetter areas such as sinks or depressions or along stream drainages. The target vegetation complex is primarily lodgepole pine, a system with a long fire return interval and primarily a crown fire regime. Lodgepole pine is an early seral species that is low shade tolerant and regenerates readily after a disturbance. Lodgepole pine stands can contain both open and serotinous cones and can regenerate rapidly in large numbers after a fire or other surface disturbances.

The majority of the lodgepole pine stands are approximately 100–150 years old, most likely originating from stand replacing fires in the early twentieth century. Scattered stands of older lodgepole pine are also present. The majority of the lodgepole pine trees have been heavily infested with MPB with rates of mortality similar to those discussed in the purpose and need identified for this analysis. Individual green trees exist, mainly as scattered individuals or in patches of smaller diameter trees, primarily in sapling stage trees.

Dwarf mistletoe infestation is present in some of these lodgepole stands, mostly along the edges adjacent to mature stands, or in areas where trees display high densities of stocking. There is no record of historical timber harvest sales in the Mule Creek project area, however single tree selection and varying post and pole timber cutting have been observed. Recent discussions with industry have solidified the fact that the ability to utilize beetle-killed pine declines rapidly once trees are on the ground. Also, surface fuel loading would increase dramatically in a stand once the beetle-killed pine is on the ground. The stands that exhibit excessive stand densities, primarily the western treatment area have some level of dwarf mistletoe infestation. These lodgepole pine stands are moderately stocked to overstocked consisting of smaller diameter post and poles with varying amounts of larger diameter sawtimber.

The spruce-fir component is present although small in comparison to the lodgepole pine. Spruce and fir are scattered within the lodgepole pine stands making up a very small percentage of trees

per acre. The spruce and fir trees exhibit small levels of endemic insect and disease agents. The Douglas-fir component also represents a small comparison to the lodgepole pine and grows intermixed in areas with no pure stands. The Douglas-fir trees show no visual signs of declining health, although single tree mortality has been observed in the area, probably due to natural life cycles or endemic insects or pathogens. Several Ponderosa Pine trees have been located in the area. There is only a handful of the tree species located within the units.

Quaking Aspen is sparsely scattered throughout the analysis area. It grows in pure stands, as well as mixed with lodgepole pine and other species. Aspen is short lived and occurs primarily as an early seral species, eventually being replaced by slower growing, shade tolerant conifers. The aspen stands in the area have varying levels of mortality due to insect and disease pathogens. Aspen is found in small to medium size patches throughout the project area and seems to be declining as a component due to linkage between absence of historic fire and encroachment from conifers, grasses, forbs and shrubs. It is assumed that long term weather related events have also contributed to the decline of the species. Fire has been the most important disturbance factor influencing change in structural stages and composition of aspen. Aspen can be killed with a light fire, but after disturbance events it regenerates by coppice shoots or root suckering. In conifer sites if there is any aspen present, the aspen will sucker and dominate a site for years after a fire or other disturbance events.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: Proposed treatments consist of approximately 520 acres of salvage harvest of dead and dying lodgepole pine and fuels reduction treatments. Recommended prescriptions are primarily tree removal which may be implemented on up to 520 acres. This alternative includes the prescribed fire proposal with the maximum burn area, approximately 1,165 acres throughout the treatment area. Proposed prescribed burn treatments would be ignited primarily in intermediate and mature dead and dying lodgepole pine stands with a minor amount of aspen and shrubland communities. Prescribed burning in shrubland/grassland communities would be adjacent to or underneath an aspen overstory and would be incidental to the total burn area vegetation.

Under the Proposed Action, identified lodgepole pine would be cut within the sanitation/salvage mechanical harvest area. Other identified conifer trees, primarily sub-alpine fir with a DBH of 9 inches or greater, would also be harvested. These larger fir trees would be removed in areas where windthrow susceptibility is of concern. Areas with larger concentrations of large diameter spruce or fir would not be harvested being that they are more windfirm in groups and tend to establish in wetter riparian areas. Cutting dead trees within the sanitation/salvage mechanical harvest area would remove fuels from the site and would reduce the threat of large scale high severity and high intensity fires.

The main proposed treatment, clearcutting in the lodgepole pine dominated stands, would immediately convert intermediate and mature lodgepole pine stands to the seedling stage. Canopy cover would be almost completely eliminated. No cover type change is anticipated, although varying levels of aspen regeneration may be noticeable on the landscape for a period of time. Treatment areas that have pockets of advanced regeneration do contain a small amount of

subalpine fir seedlings, saplings and a very low frequency of Engelmann spruce, these stands would continue to be dominated by lodgepole pine.

Fuel breaks are designed to alter fire behavior by opening canopy spacing, thus decreasing the likelihood of crown fire, and minimizing surface fire attributes, such as reducing potential flame lengths to below four feet. Fire behavior alteration can decrease ember production from ridge top vegetation, minimizing spot fires and initiation of wildfire in downwind or upslope areas. Fuel breaks could provide areas of opportunity for suppression resources to check the spread of wildfire, thus protecting values at risk.

Within these units, the harvest of beetle-killed pine would facilitate successful natural stand regeneration by exposing bare mineral soil and allowing more sunlight to penetrate to the forest floor. Harvest mechanical practices would result in cones being distributed over the site, in close proximity to mineral soil where high surface temperatures would open the cones. Seed germination in mineral soil increases chances of seedling survival because seedlings are better able to withstand dry conditions as compared to establishment in the duff layer. Natural regeneration is expected to occur within the harvest units and should result in fully stocked stands of lodgepole pine within 15 years. Monitoring of the treated sites would be performed by the BLM throughout the following years until stocking levels of regeneration are established. Therefore, seeding or planting of harvest units is not anticipated. Salvage harvest would also promote aspen suckering in areas where aspen currently exists.

Fuel loading would increase in the short term with the addition of slash but that increase would be reduced by slash treatments identified in the proposed action. Following treatment, winter snow loads on remaining slash would further reduce slash depth. Increased, long-term fuel loading as a result of falling trees, at least within the analysis area, would be avoided as a result of harvesting dead, infested and susceptible trees.

Cumulative Effects:

Through the suppression of wildfires and lack of active forest management, vegetation and stand structure diversity has been altered. It is expected that wildfires would continue to be suppressed in the future to protect other resource values and use. Consequently, the vegetation and stand structure in both treated and untreated areas within the analysis area would move towards being less diverse over time.

The small acreage of forested land that was harvested in the past through thinning or individual tree selection was not isolated to certain areas, and was spread out throughout the analysis area, therefore is not considered to have cumulative effects on the landscape. Past timber harvesting in this area had a beneficial effect on the current MPB situation. Surrounding timber management that includes clearcuts and other clearing type activities has eliminated the susceptibility to MPB on several thousand acres of adjacent forested land. Activities on adjacent private property in the past few years were targeted at protecting existing lodgepole pine stands around developments.

The combination of sanitation salvage and fire management would effectively reduce further mortality across the lodgepole pine stands within the analysis area. The treated areas would be

immediately shifted to an early seral structure stage that would eliminate or reduce stand susceptibility to MPB attacks in the area for approx. 60-80 years.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: No mechanical treatments or prescribed fire management would occur in the analysis area. High to moderately stocked lodgepole pine stands would continue to experience extensive mortality as the MPB epidemic runs its course. Blowdown would increase as the beetle-killed lodgepole pine stands deteriorate, which would result in a hazardous accumulation of surface fuels. Abnormally high surface fuel loadings, if ignited would exhibit high intensity/severity fire behavior characteristics. This type of fire behavior at the wildland urban interface would be difficult to control, causing concern for fire spread onto private lands. Lodgepole pine regeneration would occur in areas that lose their mature forest cover, but would be slow in establishing and contain smaller densities than with the proposed action, unless a moderate to high intensity fire releases seeds from serotinous cones. There would be a loss of commercial value as the lodgepole pine deteriorates and begins to rot on the ground. As the dead lodgepole pine trees start to fall down, the understory vegetation, such as regeneration and sapling size trees, could thrive as a result of increased sunlight and decreased competition. Aspen would increase in areas where mature forest cover is lost adjacent to existing clones. In mixed conifer stands the mature lodgepole pine component would be lost and spruce/fir trees would likely dominate the site.

Pure aspen stands would be unaffected by the mountain pine beetle epidemic. Conifer encroachment in mature aspen stands, primarily subalpine fir and to a lesser degree Engelmann spruce would continue. A wildfire or prescribed fire would stimulate aspen sprouting and expand the pockets of aspen interspersed with lodgepole pine. Due to the high level of mountain pine beetle killed lodgepole pine, rapid colonization of lodgepole pine sites without fire or mechanical soil disturbance may be delayed.

Mitigation Measures: None

Cumulative Effects:
Cumulative effects of not harvesting dead and dying lodgepole pine trees and other conifers designated by the BLM would include an accelerated rate of trees falling. These jack-strawed trees would increase surface fuel loading which if ignitions did occur would result in more intense and severe fire behavior throughout the project area. This alternative would have an adverse impact in the short term as the forests of lodgepole pine continue to die and fall. Previously harvested areas or areas comprised of other species would comprise the majority of live trees. The risk of catastrophic wildfire would go up as dead trees continue to fall down. Sanitation salvage and fuel reduction operations conducted by the USFS, Colorado Forest Service and private landowners surrounding the Mule Creek project area would be expected to continue. These efforts would generally reduce dead lodgepole surface fuels and open canopies in localized areas. There would be no known irreversible effects to vegetation from the No Action alternative. The No Action alternative would have an increased risk of a catastrophic wildfire occurring in the project area.

Mitigation: None

RANGELAND MANAGEMENT

Affected Environment; The Skylark and Cow Creek units of this burn plan are part of two greater livestock grazing allotments. The Cow Creek unit is in the Wendt Individual Allotment (07775) and the Skylark Unit is in the Skylark allotment (07752). The Morgan Gulch unit is not within a livestock grazing allotment. The table below reflects the Allotment, Number of Livestock, Livestock kind, season of use, and the Animal Unit Month (AUM).

Allotment	Livestock Number	Livestock Kind	Season of Use	AUMs
Skylark 07752	231	Cattle	6/15-8/17	486
Wendt Ind. 07775	129	Cattle	6/1-9/10	117

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: Since the Cow Creek unit is slated for mechanical treatment, there is no need to exclude livestock from the unit. If the Skylark unit is burned, cattle must be excluded from the burned area for two growing seasons, but this can be accomplished with the use of existing pasture fences and construction of temporary drift fences that can exclude cattle while the burned area rests. Excluding cattle from the burned area would force the grazing permittee to temporarily find other forage, or temporarily reduce the numbers to be able to continue to use the portions of the allotment that are not in the treatment area.

Cumulative Effects: Short term effects on the Skylark allotment would mean that the livestock operation would be temporarily interrupted. The long term effects would be that more forage would become available due to the reduction in vegetative canopy.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: Under the No Action Alternative, there would be no interruption of livestock grazing on the Wendt and Skylark allotments.

Cumulative Effects: Under the No Action Alternative, the existing conditions would remain the same, and less forage would be available due to the down trees for decades until decomposition occurs.

Mitigation: None

RECREATION

Affected Environment: All three units are utilized by the public and a Special Recreation Permittee for recreational activities. The public utilizes the areas for camping, hiking, horseback riding, hunting and wildlife viewing. The Morgan Gulch and Cow Creek units are also utilized

by the public for fishing. Limited routes are available for motorized use but some use occurs primarily during the hunting season as the public travels from one point to another. The Special Recreation Permittee is authorized in all three units for Guided Horseback Rides and is also authorized for Guided Big Game Hunting and Outfitting within the Skylark and Morgan Gulch units.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: All units within the Proposed Action would require temporary restrictions to provide for public health and safety as mechanical treatments and burn operations occur. This would displace visitors and the Special Recreation Permit holder from recreation activities to other areas. The level of effect would be dependent on the seasonal timing when mechanical treatments and burn operations occur. Typically these areas receive greater visitation from the general public during the late summer and fall seasons during hunting season. The removal of timber would provide additional access points for visitors to the areas and there could be an increase in unauthorized off route travel by the general public recreating on motorized vehicles. This would have an impact on visitors who are recreating by non-motorized modes of travel. Conversely, by removing dead timber, the units would become safer for the public and the Special Recreation Permittee. Design features including notification of the public through news releases, contacting the Special Recreation Permitee, implementing temporary access and travel restrictions for public health and safety, and the installation of fencing to prevent unauthorized off route travel for the protection of resources while managing for travel management designations, would provide greater beneficial impacts than adverse effects.

Cumulative Effects: Short term adverse effects from the temporary restriction of recreational activities within the units would occur. However, the long term beneficial effects by removing hazard trees that can impact recreational activities within the units while mitigating for the potential of wildland fire would provide for public health and safety. The maintenance of the main access route into the Mule Creek Unit would benefit access and transportation.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: Direct effects of the No Action Alternative would include not managing or treating dead or dying timber and the impact to recreational opportunities within the units. Lack of timber management could directly impact recreational opportunities within the area as trees fall and block routes or areas utilized by the public and permittees. As trees continue to fall, it also creates a public health and safety issue from the potential of timber falling on visitors, restricting ingress and egress in the event of an emergency and creates the potential for uncontrolled wildfire that can impact the safety of visitors or permittees within the area.

Cumulative Effects: Under the No Action Alternative, the existing conditions would remain the same and the potential of recreational opportunities degrading from diminished access and impacts to public health and safety would continue over time.

Mitigation: None.

ACCESS AND TRANSPORTATION

Affected Environment: The Skylark and Morgan Gulch units are popular access points for recreational opportunities that occur on both BLM and USFS managed lands. Several primitive non-maintained roads and trails exist within these units. While not as frequently visited, the Cow Creek Unit also has several non-maintained primitive roads and trails that can be accessed by the public. Within the Skylark Unit, public motorized travel is limited to designated routes within the western half of the unit. Additional routes exist within the eastern half of the unit but motorized travel is limited to authorized administrative use for administration of resources and authorized grazing permits. Several game and non-motorized trails exist that are utilized by the public and a Special Recreation Permit holder for non-motorized travel. Non-motorized travel is primarily by foot and horseback travel. Within the Morgan Gulch Unit, motorized travel is limited to designated routes that provide access to a dispersed parking and camping area on the east side of the Williams Fork River. Visitors to the area cross a bridge on a designated primitive road that accesses the bridge and the dispersed parking and camping area. A gate prevents unauthorized motorized travel beyond this point. Motorized travel beyond the gate is limited to authorized administrative use for administration of resources, and the owners and their guests of a private in-holding which has a ROW to maintain and access their property. Motorized travel for the ROW holder is limited to ingress and egress and maintenance of the ROW. Several game and non-motorized trails exist that are utilized by the public and a Special Recreation Permit holder for non-motorized travel. The Cow Creek Unit currently is designated as Open and there are no restrictions on motorized travel. One main route provides access to the Williams Fork River and there are several existing game and non-motorized trails that are utilized by the public and a Special Recreation Permit holder for non-motorized travel.

Environmental Consequences of the Proposed Action:

Direct and Indirect Effects: All units within the Proposed Action would require temporary restrictions to provide for public health and safety as mechanical treatments and burn operations occur. The Special Recreation Permit holder and the ROW holder for the Morgan Gulch Unit would have the greatest effects since access for their commercial operations and access to the private in-holding within the Morgan Gulch Unit would be restricted. The level of effect would be dependent on the seasonal timing when mechanical treatments and burn operations occur. Typically these areas receive greater visitation from the general public during the late summer and fall seasons during hunting season. The Special Recreation Permit holder is authorized for Guided Horseback Rides during the summer and Big Game Guiding and Outfitting during the late summer and fall. The removal of timber would provide additional access points for visitors to the areas and there could be an increase in unauthorized off route travel by the general public. Conversely, by removing dead timber, the units would become safer for the Special Recreation Permittee, ROW holders, grazing permittees and general public to access and travel within the units. Design features including notification of the public through news releases, notification to Grazing Permittees, Special Recreation Permit holders and ROW holders, temporary access and travel restrictions for public health and safety and the installation of fencing to prevent unauthorized off route travel for the protection of resources while managing for travel management designations would provide greater beneficial impacts than adverse effects.

Cumulative Effects: Short term adverse effects from the temporary restriction of access and travel within the units would occur. However, the long term beneficial effects by removing hazard trees that can obstruct access and travel within the units while mitigating for the potential of wildland fire would provide for public health and safety. The maintenance of the main access route into the Mule Creek Unit would benefit access and transportation.

Environmental Consequences of the No Action Alternative:

Direct and Indirect Effects: Direct effects of the No Action Alternative would include not managing or treating dead or dying timber and the impact to access and transportation. Lack of management could directly impact access and transportation within the area as trees fall and block routes or areas utilized by the public and permittees. As trees continue to fall it also creates a public health and safety issue from the potential of timber falling on visitors, restricting ingress and egress in the event of an emergency and creates the potential for uncontrolled wildfire that can impact the safety of visitors or permittees within the area.

Cumulative Effects: Under the No Action Alternative, the existing conditions would remain the same and the potential of diminished access and impacts to public health and safety would continue over time.

Mitigation: None.

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TRIBES, INDIVIDUALS, ORGANIZATIONS, OR AGENCIES CONSULTED:

Tribal consultation has been initiated for the Proposed Action on December 22, 2011, and to date no tribe has identified any area of traditional cultural or spiritual concern. Tribal consultation would continue through the EA process. The USFS, Arapaho-Roosevelt Forest, was concerned about noxious weeds and unauthorized off-road travel onto the forest if the trees are removed.

INTERDISCIPLINARY REVIEW:

Name	Title	Area of Responsibility	Date Signed

Name	Title	Area of Responsibility	Date Signed
Paula Belcher	Hydrologist	Air Quality; Surface and Ground Water Quality; Floodplains, Hydrology, and Water Rights; Soils, Farmlands, Prime and Unique	02/20/2013
Bill Wyatt	Archaeologist	Cultural Resources; Native American Religious Concerns; Paleontological Resources	03/14/2013
Zach Hughes	Natural Resource Specialist	Weed Coordinator, Invasive, Non-Native Species	12/11/2012
Cynthia Landing	Rangeland Management Specialist	Vegetation; Rangeland Management	10/30/2012
Megan McGuire	Wildlife Biologist	Migratory Birds; Special Status Plant and Animal Species; Terrestrial and Aquatic Wildlife; Areas of Critical Environmental Concern.	03/07/2013
Kelly Elliott	Natural Resource Specialist	Hazardous or Solid Wastes; Geology and Minerals	2/28/2013
Kevin Thompson	Fuels Specialist	Fire Ecology, Fuels Management	8/14/2012
John Monkouski	Outdoor Recreation Planner	Transportation, Recreation, Access, Wilderness, Wilderness Characteristics	3/19/2013
Hannah Schechter	Outdoor Recreation Planner	Visual Resources; Recreation, Wild and Scenic River	8/14/20112
Tom Adamson	Forester	Forest Management	03/21/2013
Annie Sperandio	Realty Specialist	Land Tenure/Status, Realty Authorizations	10/30/2012
Kevin Thompson	Fuels Specialist	Project Lead – Document Preparer	3/21/2013
Susan Cassel	Associate FO Manager	Environmental Justice, Social Economics, P&E Coordinator	3/27/2013

ATTACHMENTS:

Attachment 1: Tribal consultation list
Attachment 2: Visual Contrast Rating
Attachment 3: Water Quality Report
Attachment 4: Biological Assessment

Attachment 1 Tribal Consultation List

Mike laJeunesse, Chairman
Shoshone Business Council
Shoshone Tribe
P O Box 538
Ft. Washakie, WY 82514

Mr. Wilford Ferris
Tribal Historic Preservation Officer
Shoshone Tribe, Cultural Center
P.O. Box 538
Fort Washakie, WY 82514

Gary Hayes, Chairman
Ute Mountain Ute Tribe
P O Box JJ
Towoac, CO 81334

Mr. Terry Knight, Sr., THPO Director
Ute Mountain Ute Tribe
P O Box 468
Towaoc, CO 81334

Jim Shakespeare, Chairman
Northern Arapaho Business Council
P O Box 396
Fort Washakie, WY 82514

Darlene Conrad, THPO Director
Northern Arapaho Tribe
P O Box 396
Fort Washakie, WY 82514

Robert Goggles, NAGPRA Representative
Northern Arapaho Tribe
328 Seventeen Mile Road
Arapaho, WY 82510

Irene Casias, Chairman
Southern Ute Indian Tribe
P O Box 737
Ignacio, CO 81137

Neil Cloud, NAGPRA Representative
Southern Ute Tribe
Mail Stop #73
Ignacio, CO 81137

Irene Cuch, Chairman
Uintah & Ouray Tribal Business Committee
P O Box 190
Ft. Duchesne, UT 84026

Betsy Chapoose, Director
Cultural Rights & Protection Specialist
Uintah & Ouray Tribe
P O Box 190
Fort Duchesne, UT 84026

Ernest House, Jr., Executive Secretary
Colorado Commissioner of Indian Affairs
130 State Capitol
Denver, Colorado 80203

Attachment 2

Form 8400-4
(September 1966)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date 8/13/12
District NW
Resource Area KFO
Activity (program) FIRE

SECTION A. PROJECT INFORMATION

1. Project Name
Mule Creek Fuels Treatment

2. Key Observation Point
County Road 34-Cow Creek

3. VRM Class
II

4. Location
Township T1S
Range R7W
Section 20&21

5. Location Sketch

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LANDWATER	2. VEGETATION	3. STRUCTURES
FORM	Rolling terrace	Low clumps surrounding dead trees	Ranch house
LINE	Horizontal	Horizontal & vertical	Horizontal & vertical
COLOR	Gray/green	Gray/green & brown	Green
TEXTURE	Smooth	Smooth & coarse	Smooth

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LANDWATER	2. VEGETATION	3. STRUCTURES
FORM	Rolling terrace	Low clumps	
LINE	Horizontal	Horizontal	Horizontal & vertical
COLOR	Brown with some black spots	Gray/green, green with new growth	Green
TEXTURE	Smooth	Patchy	Coarse

SECTION D. CONTRAST RATING X SHORT TERM ☐ LONG TERM

1. DEGREE OF CONSTRAST

ELEMENTS	FEATURES: LANDWATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
Form				X			X					X
Line				X		X						X
Color				X		X						X
Texture				X		X						X

2. Does project design meet visual resource management objectives? X Yes ☐ No (Explain on reverse side)

3. Additional mitigating measures recommended? X Yes ☐ No (Explain on reverse side)

Evaluator's Names: Hannah Schechter
Date: 08/14/12

Form 8400-4
(September 1985)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date 8/13/12
District NW
Resource Area EFO
Activity (program) FIRE

SECTION A. PROJECT INFORMATION

1. Project Name
Mule Creek Fuels Treatment

2. Key Observation Point
County Road 3-Morgan Gulch

3. VRM Class
II

4. Location
Township T1S
Range R7W
Section 27,28,33,34

5. Location Sketch

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LANDWATER	2. VEGETATION	3. STRUCTURES
FORM	Low hills	Vertical dead trees	n/a
LINE	Horizontal & diagonal	Horizontal & vertical	n/a
COLOR	Gray/green	Gray/green & brown	n/a
TEXTURE	Smooth & coarse	Smooth & coarse	n/a

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LANDWATER	2. VEGETATION	3. STRUCTURES
FORM	Low hills	Low clumps	n/a
LINE	Horizontal & diagonal	Horizontal & vertical	n/a
COLOR	Brown with some black spots	Gray/ green, green with new growth	n/a
TEXTURE	Smooth	Patchy	course

SECTION D. CONTRAST RATING X SHORT TERM ☐ LONG TERM

1. DEGREE OF CONSTRAST

	FEATURES											
	LANDWATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
ELEMENTS: Form				X			X					X
Line				X		X						X
Color				X		X						X
Texture				X		X						X

2. Does project design meet visual resource management objectives? X Yes ☐ No (Explain on reverse side)

3. Additional mitigating measures recommended? X Yes ☐ No (Explain on reverse side)

Evaluator's Names: Hannah Schechter
Date: 8/14/12

Form 8400-4
(September 1985)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date 8/13/12

District NW

Resource Area KFO

Activity (program) FIRE

SECTION A. PROJECT INFORMATION

1. Project Name
Mule Creek Fuels Treatment

2. Key Observation Point
County Road 3-Skylark

3. VRM Class
II

4. Location

Township T1S,T2S

Range R7W,

Section 25,29,31,32, 6

5. Location Sketch

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LANDWATER	2. VEGETATION	3. STRUCTURES
FORM	Low rolling terrace	Low clumps in front of dead trees	n/a
LINE	Horizontal	Horizontal & vertical	n/a
COLOR	Gray/green	Gray/green & brown	n/a
TEXTURE	Smooth	Smooth & coarse	n/a

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LANDWATER	2. VEGETATION	3. STRUCTURES
FORM	Low rolling terrace	Low clumps	n/a
LINE	Horizontal	Horizontal	n/a
COLOR	Brown with some black spots	Gray/green, green with new growth	n/a
TEXTURE	Smooth	Patchy	n/a

SECTION D. CONTRAST RATING ☐ SHORT TERM ☐ LONG TERM

1. DEGREE OF CONSTRAST

	FEATURES											
	LANDWATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
ELEMENTS: Form				x			x					x
Line				x		x						x
Color				x		x						x
Texture				x		x						x

2. Does project design meet visual resource management objectives? x Yes ☐ No (Explain on reverse side)

3. Additional mitigating measures recommended? x Yes ☐ No (Explain on reverse side)

Evaluator's Names — Date
Hannah Schechter — 8/13/12

Attachment 3: Water Quality Report
Written by: Paula Belcher
Mule Creek Project Water Quality DOI-BLM-LLCON02000-2012-001_EA

NEPA Compliance Record Rationale

The proposed Mule Creek fuels treatment project requires an assessment of compliance with the Clean Water Act and the Colorado Land Health Standards #1, 2, and 5. The Project is comprised of three main treatment areas- Skylark, Cow Creek, and Morgan Gulch, which are all located in the Upper Colorado River Basin. The entire project is within the Williams Fork 5th order watershed, and includes the perennial streams of Mule Creek (tributary to Lost Creek), Cow Creek, Morgan Gulch, and the Williams Fork River. A review of the potential impacts of the proposed action and no action alternatives was done for each treatment area, using GeoWepp, the Upper Colorado Watershed Assessment, the NRCS Grand County Soil Survey, and field data.

Summary: The Proposed Fuels Project includes mechanical and prescribed burn treatments to treat vegetation along perennial trout waters. The Cow Creek units and the Morgan Gulch treatments are located on moderate to steep slopes, with slopes steepening below the Cow Creek units and draining directly into the Williams Fork River. Applying the standard buffers of 100 feet to all perennial waters and 50 feet to intermittent drainages, the projected sediment loads from the mechanical treatments and Mule Creek burns should remain within the units and not reach the streams. The Morgan Gulch area has shown evidence of slope failure, and could pose a larger soil stability problem if burned. Ideally, the burn unit's acreage that extends into the main basin of Morgan Gulch should not be burned, as the sagebrush hill is steep and the stream segment is still recovering from a very large sediment event in 2011. If the prescribed burn removes 50% or more of the understory, then stabilizing actions would be required prior to any runoff producing event, unless buffers are increased. The greatest sediment producing slopes of the Morgan Gulch burn unit was on the south aspect slopes, which are not forested. Eliminating or modifying these portions of the burn would reduce the sediment yields, and not significantly increase the fire hazard concerns.

Discussion:

Skylark Treatment Area: T 2 S., R. 78 W., Sec. 5, 6 and T. 1 S., R. 78 W., Sec. 32, 31
6th P.M.

The Skylark Treatment area is located on the "Skylark Ranch" property that the BLM acquired in a land exchange. The eastern portion of the property includes a hay meadow that is no longer irrigated. The entire treatment area is within a grazing allotment that is divided into three pastures. The proposed treatments are located on the north side of Mule Creek, a perennial stream that is tributary to Lost Creek, which flows into the Williams Fork River. Mule Creek supports a self-sustaining brook trout population.

Water Rights: In 2008, the state obtained an instream flow right on Mule Creek for 1 cfs during the winter months (November-March) and 1.2 cfs for the public land segment. There are senior water rights that can divert the stream upstream from the property that are owned by Climax Molybdenum Company. Downstream water rights that could be affected by water quality or quantity impacts would include:

T. 1 S., R. 78 W., Sec. 32- John Shore Ditch, Ditch No 1
Sec. 29- Mule Creek Feeder Ditch

Soils: The soils within the forested areas are mapped as being primarily Cowdrey loams, 2-6% slopes. The loams were formed in glacial drift, and below the loam surface soils are clays. This results in a high

available water capacity and a slow permeability. Using the NRCS's soil suitability evaluations, the mechanical treatments are compatible with the soils, due to the gentle slope and lack of rock fragments at the soil surface. Under ordinary climatic conditions, there would only be slight erosion loss from the mechanical treatments. The ratings consider the slope and soil erosion factor (K) and soil loss is caused by sheet or rill erosion in areas where 50 to 75 percent of the surface has been exposed by logging, grazing, mining, or other kinds of disturbance.

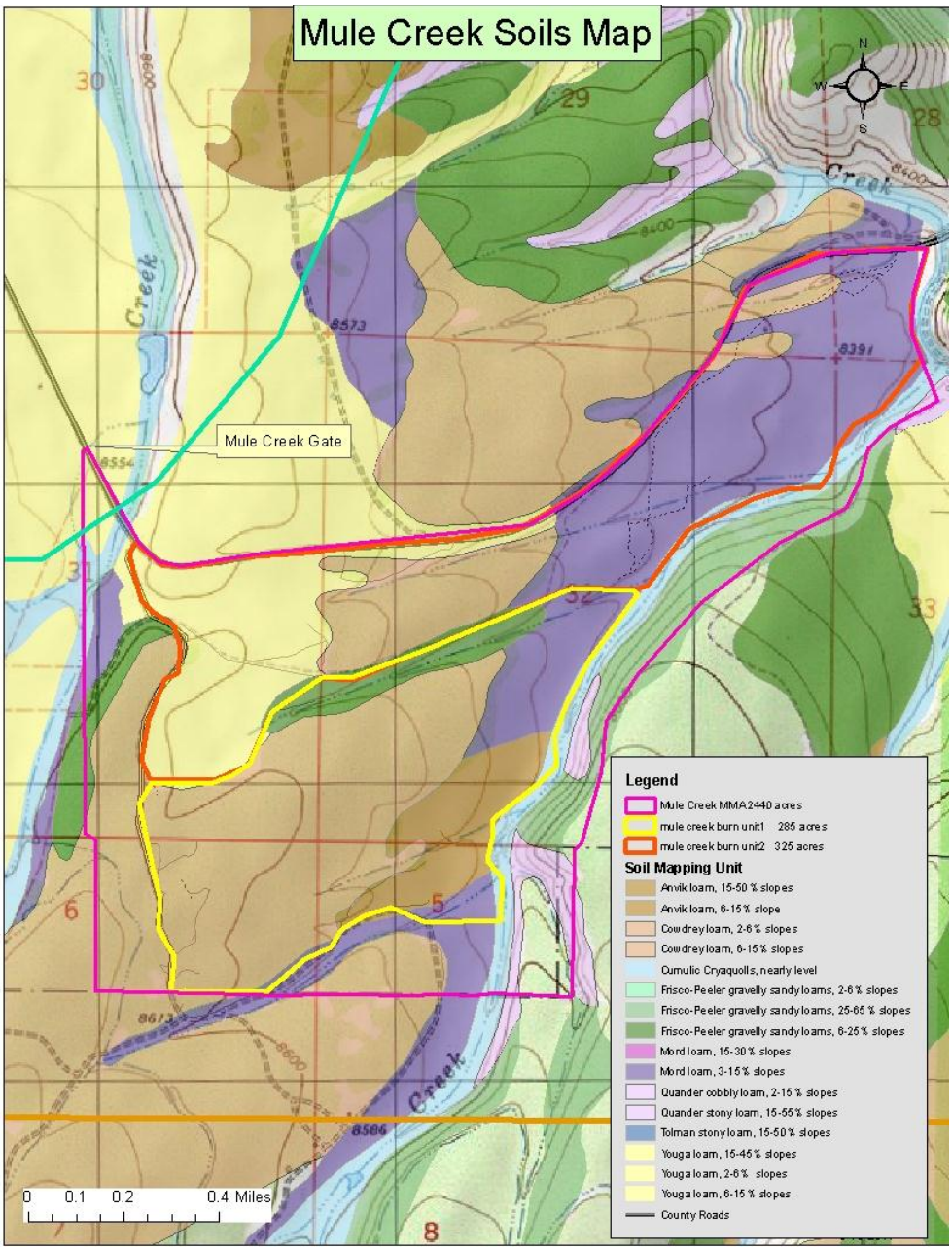
The Skylark unit is also proposed for two burns- a north unit (unit 2) and a south unit (unit 1). The proposed burns extend east and west of the proposed mechanical treatments, and basically encompass all the public land north of Mule Creek. The NRCS's soil suitability ratings for fire consider the potential for damage to "nutrient, physical, and biotic" soil characteristics by fire. The ratings involve an evaluation of the potential impact of prescribed fires or wildfires that are intense enough to remove the duff layer and consume organic matter in the surface layer." (NRCS)

The Unit 1 burn would include the forested Cowdrey soils described above, and Mord loams, 3-15% slopes (northeast portion of the unit) and Anvik loams, 6-15% slope (southeast portion of the unit). The unit's southern boundary is proposed to extend to the vegetative buffer of Mule Creek (minimum of 100 feet). The timbered portion of the unit has a moderate hazard- which indicates some erosion is likely and that erosion control measures may be needed. This is primarily due to the fine texture of the soil and the rock fragments within the soil profile. Approximately 30% of the burn unit (meadow) is rated as having slight limitations (or hazards) associated with the burn, and does not pose an erosion hazard.

The North burn unit (Unit 2) is comprised of the forested Cowdrey loams also, and the upper portion of the unit is Youga loams, and the eastern (lower) portion of the unit is Mord loams. Again, the hazard to the non-forested soils from fire is considered low, and the forested area (26%) is considered moderate.

Water: Mule Creek is a small low gradient stream with generally fine textured substrate. The stream has several beaver ponds and supports a willow community. The south side of the stream is confined by a steep ridgeline, but the valley is less confining to the north. The BLM is trying to manage the riparian area and decrease the width to depth ratio of the stream, which would improve fish habitat. Elk, livestock, and horses (trail rides) have impacted streambanks, creating crossings that are wide and eroding. Livestock tend to concentrate in the riparian zone, especially since the meadows are no longer irrigated. Willows and sedges help stabilize the banks, but where livestock can access the stream, bank slumping and sloughing occurs. There are stream segments in the lower and middle pasture that have more upland species such as dandelion and Kentucky bluegrass within the riparian zone. Sediment deposition is more common in these portions of the stream. In 2010, the BLM established a MIM transect in the middle pasture to monitor the riparian and stream trends.

Due to the higher potential for soil (and therefore water quality) concerns from the fire, GeoWEPP was used to model the existing soil conditions, and those that could result if both Unit 1 and Unit 2 were burned. The Mule Creek watershed's mean basin slope (10 m DEM) is 20.8 percent and yearly peak flow about 39 cfs. (USGS Streamstats), assuming no upstream diversions. A 10 year peak flow would be about 78 cfs. Due to the inclusion of USFS properties within the Mule Creek watershed, only a 30 m cell resolution was used to provide DEM, soils, and vegetative cover. Green Mountain Dam was used for all climatic data, recognizing that actual precipitation would be higher. Two projects were created- one for the portion of Mule Creek immediately downstream from Unit 1, and one downstream of the confluence with Lost Creek, immediately upstream from the county road crossing.



- Unit 1 Burn- (285 acres)

GeoWEPP divided the watershed upstream of Unit 1 into 163 hillslopes. Soil losses were not calculated from the unit due to the size of the entire watershed (computer memory limitations). Sediment delivery to the outlet point (just below Unit 1) was calculated. The soil tolerance (T factor) was 2.5 tons/acre/year. The average annual sediment discharge to Mule Creek, just below Unit 1 was calculated at 221.0 tonnes/yr. Under the low, moderate, and high intensity burn scenarios, this increased to 251.1, 258.5, and 308.0 tonnes/year. The eroded sediment in the channel was 62% silt and 36% clay sized particles.

An individual hillslope was then modeled in WEPP. The hillslope was in the NW corner of Section 5, with a sagebrush vegetative cover. Under the existing conditions, the hillslope generates 1.93 inches of runoff per year. The average annual soil loss is 0.004 t/yr. Under a low intensity fire (90% ground cover remaining), the runoff increased to 2.04", and the annual soil loss was 0.009 t/acre. A moderate intensity

fire (45% ground cover remaining) had the runoff increase to 2.34' and the average annual soil loss of 0.224 t/A. The hillslope was then modeled using various buffer widths to reduce the amount of sediment that would be delivered to Mule Creek.

A 25 ft. wide buffer at the end of the hillslope was left unburned. This brought the amount of runoff generated back down to about the low intensity amount (2.06"), and the soil yield down from 0.767 t/A to 0.162 t/A, which is still much higher than the existing (0.004) or the low intensity fire (0.0089). A 35 ft. wide buffer was applied, and there was still significant deposition occurring at the very end of the slope, which would reach Mule Creek. A 50 ft. buffer still produced a sediment yield of 0.126 t/A, with the maximum deposition occurring at Mule Creek, rather than within the buffer zone.

- Lost Creek- above Cty. Rd. 3 (3335.75 ha)

Sediment contributions from a preborn scenario to a postburn scenario were run for this larger watershed. This modeled run included Units 1 and 2, and the Lost Creek watershed, including Mule Creek. GeoWEPP created 282 hillslopes (with their slopes, land use, and soils). I used a T factor of 2.2 T/Acre/yr, and ran the calculations for a three year period. 56 hillslopes produced sediment that left the site, and the largest producers were upstream from the burn. This period ("existing conditions") produced 3.66 mm of runoff passing through the Lost Creek outlet point on an average annual basis. Sediments were primarily fine (52.8% silt, 31.8% clay), with a sediment delivery ratio of 0.201 and 654.9 tonnes/yr average annual sediment discharge from the outlet.

The model was rerun, changing the hillslopes within unit 1 to a low intensity burn (90% remaining ground cover). T factor and length of run (3 years) were kept the same. The number of hillslopes contributing to the sediment yield increased to 59, with 5 being the predominant (by far). The amount of runoff went up to 5.71 mm of runoff, sediment delivery ratio of 0.257 and 1158.3 tonnes/year average annual sediment discharge from the outlet, almost double the preburn conditions.

Using WEPP to manage a specific hillslope adjacent to the creek, with a hillslope length of 529 feet, the pre-condition, low severity, and moderate severity (45% remaining ground cover) was run. The amount of runoff from the single hillslope increased from 1.93 inches, 2.04", to 2.34" respectively. The maximum soil detachment occurred at the very end of the slope (529 feet) and increased from 0.00446 t/Acre to 0.767 t/Acre. By buffering the foot of the slope (not burning it), the soil loss stopped above the edge of the burn and soil deposition started occurring. For smaller buffers, the maximum point of deposition was still occurring right up to the end of the slope.

Mule Creek in the Middle Pasture, downstream from Unit 1. Note bank detachment and crossing area in foreground of picture. Riffle/run segment.

Morgan Gulch Treatment Area: T. 1 S., R. 78 W., Sec. 27, 28, 33, 34

The Morgan Gulch area is located on the east side of the Williams Fork River. The treatment area includes Morgan Gulch, a perennial stream that supports a self-sustaining brook trout population. The stream has the potential to be considered for future management as a cutthroat trout stream.

Water Rights: There are two private springs located just upstream of the burn unit on the west hillslope above Morgan Gulch. The lower spring is mapped at a point that is on the burn unit boundary. There are no other recorded water rights within the Morgan Gulch area. Most of the downstream residences are on well water. It is approximately 1-1.5 miles downstream of the Morgan Gulch confluence before direct diversions occur on the Williams Fork that could be affected by the Morgan Gulch unit.

Soils: The soils for the west and east portions of the mechanical treatment area are primarily mapped as Newcomb-Rock outcrop complex, 50-70& slopes. The western portion is rated very severe erosion hazard due to the high soil erodiblity and slope. The eastern portion has a moderate erosion hazard, due to the same factors. The ratings for harvest equipment (rubber-tire skidders, bulldozers) on the west unit were poorly suited and the east unit moderately suited. Poorly suited indicates soils' slopes are unfavorable for equipment. Additional design, site maintenance, or mitigative actions are required to reduce soil erosion. Moderately suited soils have slopes that reduce performance expectations to "fair" and some maintenance is needed. The hazard from soil erosion due to rill or sheet erosion where 50-75% of the soil surface is exposed due to logging, mining, or grazing is rated as "very severe" (west) and "moderate" (east unit). Very severe indicates "significant erosion is expected, loss of soil productivity and off-site damage are likely, and erosion-control measures are costly and generally impractical".

The proposed burn unit is mapped as a tributary basin to Morgan Gulch, with some additional acres within the Morgan Gulch basin near the confluence. The soils are mapped as primarily Cryborolls-Rock Outcrops (47.7%) and Newcomb-Rock Outcrop soils (44.7%). The unit includes the entire tributary's drainage, and the drainage itself is mapped as having histic cryaquolls, which is a wetland soil (with a high water table). The burn unit is mapped for erosion hazards as 72.7% very severe and 21.5% as moderate. The slope of the soils' and their erodibility are the factors contributing to this rating. The upland areas are rated as having moderate potential soil impacts due to fire, due to the soils' textures and rock fragments. 'Moderate" indicates that fire damage can occur because one or more soil properties are less than desirable. Fair performance can be expected, and some maintenance is needed. The burn unit is also rated as poorly suited for roads due to slope.

Water:

Morgan Gulch is a confined steep gradient stream that supports a willow/alder riparian community. The stream has good habitat diversity, with riffles, runs, pools, and a few beaver ponds. The stream has a user created trail that runs parallel to the stream up to the forest boundary. Small slumps along the foot trail have been observed, despite good vegetative cover. In 2011, the area experienced very high runoff. Near the mouth of the stream where Morgan Gulch has a low gradient and is parallel to the Williams Fork River, a large amount of material was deposited upstream of an undersized culvert. A 2012 field review did not find the source of the material- it could have been from the channel itself, beaver dam failures, or an adjacent hillslope failure.

The Williams Fork River is adjacent to the vegetation treatment units and the burn unit. The Williams Fork River is a wide, confined stream that has shallower flows due to upstream transbasin diversions. The alder/willow riparian community also includes an overstory of Spruce/Fir mature trees. The Williams Fork River supports brown and rainbow trout, with biomass estimates indicating a fair to good fishery.

GeoWEPP was used to model expected erosion losses due to the proposed burn and mechanical treatment. Initially, the burn unit was modeled with the watershed outlet point being just before the confluence with Morgan Gulch. The drainage area was divided into three hillslopes- the upper hillslope, the north hillslope, and the south hillslope. The NRCS Grand County Soil Survey was used, which allowed WEPP to include the individual (30 m) raster soil types. Because the burn unit involves hillslopes with differing aspects (north, west, and south), and with differing vegetation- the south aspects are primarily Inter-Mountain Basins Montane Sagebrush Steppe communities, the north and west are lodgepole pine, the completeness of the burn was also varied- a moderate intensity burn on the south aspects with a low intensity burn on the north aspects, for example. Another model was done for the Morgan Gulch drainage just upstream from the tributary. This mainstem drainage included the small portion of the burn that extends into this basin and the mechanical treatments. Due to the USFS lands in the headwaters, a more generalized soils map had to be used. The sediment delivery to the Williams Fork involved too much complexity, and our computers did not have sufficient memory to run the program for this larger watershed.

Proposed Burn Unit- Tributary Drainage Only

- **Existing Conditions**

Pre-burn conditions were run for three years. GeoWEPP divided the burn into three hillslopes, with runoff and sediment yields calculated for the outlet point located just above the confluence with Morgan Gulch. Due to the smaller size of the analysis unit, flowpaths could also be generated and soil loss within the unit was calculated. The north hillslope was the main generator of runoff and soil loss.

- **Low Intensity Burn- for all three areas**

Assumption was for 90% ground cover after the burn, and a three year run. Soil Tolerance was held unchanged. All three hillslopes generated runoff and sediment.

- **Moderate Intensity Burn- for top and north, low intensity for south**

Assumption was for 45% ground cover after the burn for the top hillslope and the north side of the drainage. The southern side of the drainage, since it was a north aspect and early spring burn, was left at a low intensity fire, and 90% of the ground cover would remain unburnt.

- **High Intensity Burn- North unit only, top unit is moderate, south is low**

Assumption was that the top unit had a moderate intensity burn (45% ground cover), the north side of the drainage would be drier, more snow free and would have a high intensity burn (25% remaining ground cover), and the south side of the drainage would remain low intensity (90% ground cover).

- **"Extreme" Burn- North and Top unit high intensity, South-moderate.**

Assumption was that the top and north units had a high intensity burn, with a remaining 25% ground cover. The south unit experienced a moderate intensity fire, and the remaining ground cover was 45%.

Using the **moderate** scenario and a hillslope within the north unit, WEPP was used to model the effectiveness of a buffer. The hillslope was 620 feet long and a 25 foot buffer was applied. The average annual soil loss was 1.846 t/A, and the average annual sediment yield was 0.809 t/A, but the deposition extended to the toe of the slope and would enter the drainage. A 45 foot buffer was applied, with a similar result. The 50 foot buffer reduced the average annual soil loss to 1.766 t/A, and the average annual sediment yield to 0.585 t/A, resulting in no sediment entering the drainage.

Scenario	Pre-Burn	Low Intensity	Moderate Intensity	High Intensity	"Extreme"
Offiste Assessment – Watershed Method					
Avg. Annual Runoff, mm	29.87	58.04	68.68	63.24	
Avg. Annual Sed. Discharge (tonnes/year)	239.5	276.1	535.6	445.9	
Avg. Annual Sed. Delivery/ Unit area of Watershed (T/ha/year)	3.5	4.1	7.8	6.6	
On-site Assessment					
Mapped soil loss (tonne/ha/yr)	0.0 Top 0.0 North 0.0 South	0.3 Top 0.9 North 0.8 South	5.6 Top 7.9 North 0.9 South	5.8 Top 15.2 North 0.8 South	
Sediment Yield (tonne/ha/yr)	n.a.	n.a.	n.a.	n.a.	

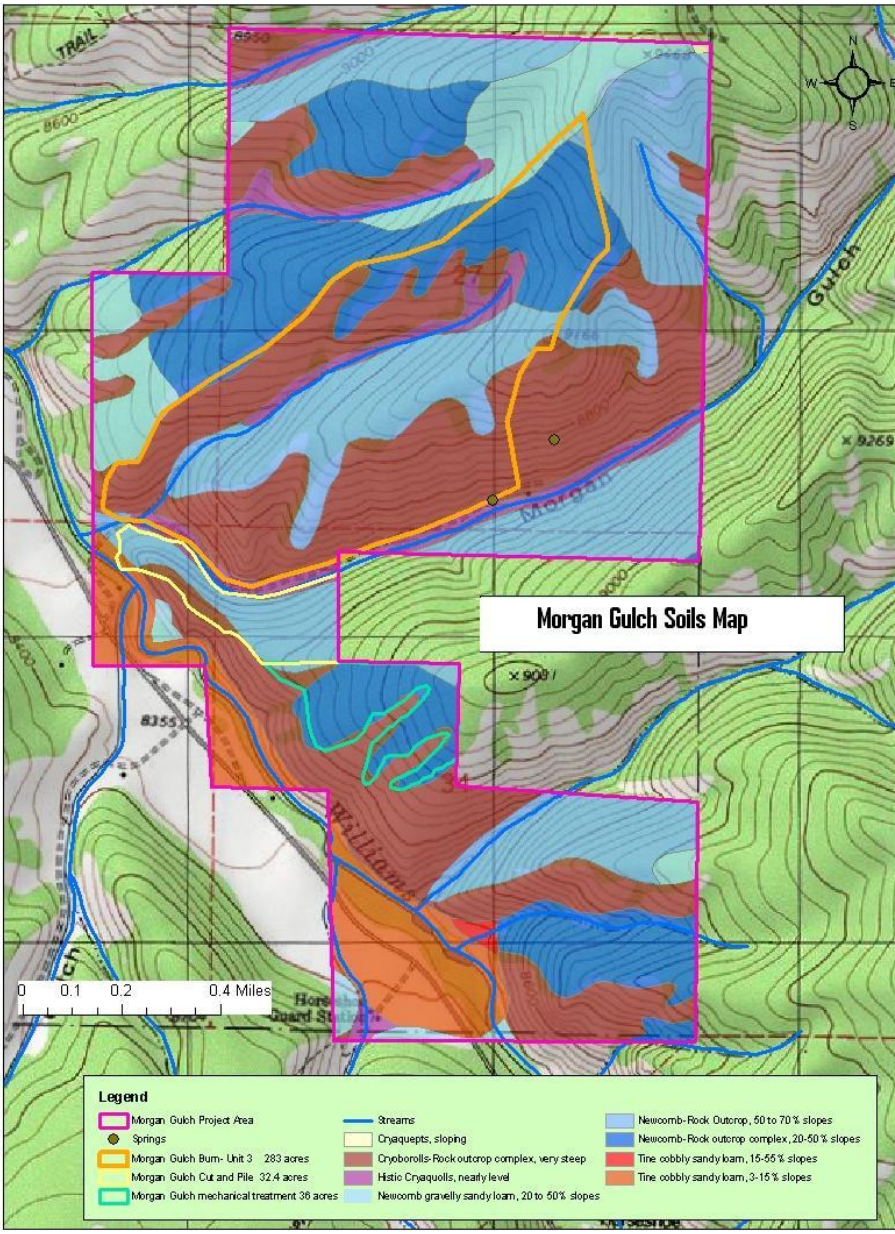
Proposed Burn Unit (partial) and Mechanical Treatments Combined
Outlet- Morgan Gulchjust above confluence with tributary to North (main portion of burn)
The proposed burn unit encompasses the drainage basin for a tributary to Morgan Gulch, but its southern boundary crosses the drainage boundary and includes some acres in the lower portion of Morgan Gulch's drainage. This portion of the watershed is primarily sagebrush, with a good understory characteristic of a mountain loam range site. The proposed mechanical treatments are located on the opposite side of Morgan Gulch. GeoWEPP generated 154 hillslopes and 2,748 flowpaths for the Morgan Gulch model. These numbers limited the On-site Assessments done due to memory needed. The eroded sediment consisted primarily of sand (53.7%) and silt (27.9%).

- **Pre-Burn-** The existing conditions were entered into GeoWEPP, for a 3 year run. The soil tolerance factor was 0.5 tonnes/hectare/year. The soil type for the Morgan Drainage was Newcomb (GR-SL) soils.
- **Low Intensity Fire / Mechanical Treatment:** A three year run was done, keeping soils, T factor the same. Ground cover in the small areas of the burn unit were 90% cover (low intensity), and the mechanical treatment units were changed from a mature lodgepole forest to a 5 yr. old forest.
- **Moderate Intensity Fire/Mechanical Treatment:** Soils, soil tolerance and mechanical treatment assumptions remained the same as above. The north hillslopes within the burn, however, were reduced to a 45% ground cover after the burn.

- **High Intensity Fire/Mechanical Treatments**: Assumptions remained the same as above, except for the burn unit's hillslopes having a 25% remaining ground cover.

Scenario	Pre-Burn	Low Intensity Fire/ Mechanical	Moderate Intensity/ Mechanical	High Intensity/ Mechanical
Offiste Assessment – Watershed Method				
Avg. Annual Runoff, mm	0.75	3.61	4.02	4.13
Avg. Annual Sed. Discharge (tonnes/year)	115.1	389.8	513.4	504.3
Avg. Annual Sed. Delivery/unit area of Watershed (T/ha/year)	0.1	0.5	0.6	0.6

Using the moderate scenario, a lower hillslope within the burn that had high sediment loss was modeled in WEPP. The hillslope (from the DEM) had some deposition occurring midslope, but the toe of the slope was steep. The slope length was 1,150 feet to Morgan Gulch. Under the moderate scenario, the hillslope had 2.67" of runoff, with 6.277 tons/A soil loss and 5.645 ton/A sediment yield. The maximum soil loss occurred at the slope's toe, which would enter the Morgan Gulch drainage. A 50 foot and 100 foot buffer were modeled. The 50' buffer reduced the soil yield, but there was still a large sediment load entering the stream. With the 100 foot buffer, the maximum deposition occurred above the stream channel, and there was little to no additional sediment reaching the drainage. The soil loss was 4.930 tons/Acre, which is at the maximum soil loss tolerance for these soils without compromising soil fertility.



Picture of bank deposits along Morgan Gulch. Picture on Left- Morgan Gulch is in the foreground of the picture, flowing from right to left. (From the stamped picture date, go to the right of "19"- see darker streambank soil- this is Morgan Gulch). Note sediment pile on opposite bank on left sides of tree trunks.

Cow Creek Treatment Area: T. 1 S., R. 78 W., Sec. 20, 21

The Cow Creek area is located north of the two other project areas. There are no burns proposed for the area, but only mechanical treatments totaling 220 acres. The three units are located on the east side of the Williams Fork River on moderate slopes with steeper slopes below the units draining to the river. The middle unit's north boundary is Cow Creek, an intermittent stream with a perennial impoundment near the upper portion of the unit.

Water Rights: The BLM and NRCS worked together to construct the impoundment, using a "livestock stock water permit". The permit allows small impoundments on intermittent or ephemeral streams that would generally not impact downstream water right holders. The impoundments are for livestock water, and the permit registers the owner of the structure, which is the BLM, with the state. The BLM does not hold water rights on the pond. There are no immediate downstream water right holders that would be impacted by the proposed action.

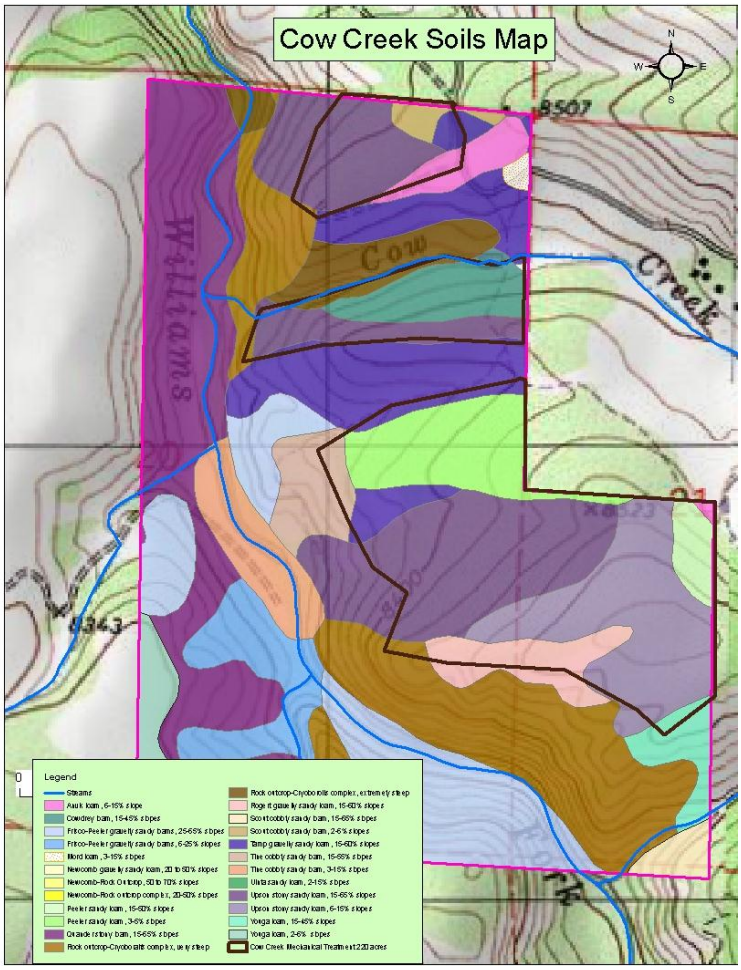
Soils: The three treatment areas and their surrounding soils are more varied than the two other project areas.

- North unit: The north unit is located on a gentle-moderate bench that overlooks the Williams Fork River. Slopes within the unit range from 0-14%, with the western edge steepening to 30-40%. Within the unit are 6 acres with slopes > 40%. It is approximately 400 feet to the Williams Fork, and below the unit slopes are generally greater than 40%. The largest soil mapping unit is an Upson stony sandy loam, 15-65% slopes. The soils are rated slight erosion hazard for the eastern portion of the unit, and moderate to severe for the Upson due to the steep slopes.

- Middle Unit - 21.1 acres
  The "middle" unit is long and narrow, with Cow Creek on the north side. It is approximately 115-140 ft. from the unit to the Williams Fork River. Most of the unit is between 30-40% slopes,

with only 1.5 acres having slopes greater than 40%. 63% of the unit is mapped as Cowdrey loams, 15-45% slopes. The erosion hazard is severe due to slopes and soil erodibility. The limitations for harvest equipment are severe on the minor soils, and moderate for Cowdrey loams. The Cowdrey loams' limitations are due to low strength and slopes. The soils are poorly suited for roads due to slope, with Cowdrey loams also having low strength limitations.

- South Unit- 96.7 acres
  The south unit is about 440 feet above the Williams Fork River, located on a bench above the river. The slope below the river is steep as it drops down to the floodplain. The unit itself has moderate slopes, between 14-30%. Most of the unit is mapped as Upson stony sandy loams, with 37% being the mapping unit of 15-65% slopes and 27.7% being the unit with 6-15% slopes (southern portion). About 20% of the remaining treatment area is mapped as Peeler sandy loams, 3-15% slopes. Erosion hazards on the southern portion of the unit are slight, but are severe on the northern portion. The soils are highly erodible, so where slopes increase, the limitations of the soils are great. The northern portion is poorly suited for harvest equipment and the southern is well suited.



plbelcher, 2/15/2013

BIOLOGICAL ASSESSMENT
TE SPECIES
Mule Creek Fuels Reduction Project
For the Final EA

Kremmling Field Office

Bureau of Land Management

Grand County, CO

Prepared by: Megan McGuire, Wildlife Program Lead
2103 E. Park Ave., PO Box 68
Kremmling, CO 80459
Ph: (970) 724-3028

February 28th, 2013

EXECUTIVE SUMMARY

This report consists of the Biological Assessment for the Mule Creek Fuels Reduction Project. Effects to species listed as federally threatened or endangered are summarized and provided in this Executive Summary.

This Biological Assessment reaches the following determinations for the listed species for the Proposed Action (PA):
Canada Lynx – May Affect, Not Likely to Adversely Affect
Penland Beardtongue -- No Effect
Osterhout milkvetch -- No Effect
Bonytail – No Effect
Colorado Pikeminnow – No Effect
Razorback sucker – No Effect
Humpback chub – No Effect
Greenback Cutthroat Trout– No Effect

There are no water-depletions associated with this project and thus 'No Effect' to the endangered river fishes of the Colorado River basin is anticipated. Greenback Cutthroat Trout are not found within the action area and thus 'No Effect' is anticipated. No suitable habitat occurs in the proposed project area for Penland Beardtongue and Osterhout milkvetch, thus 'No Effect' is anticipated. Habitat for Canada lynx exists in the project area and may be impacted by implementation of the Proposed Action. Therefore, the analysis of this projects effect to Canada lynx is the focus of the Biological Assessment.

TABLE OF CONTENTS

I. INTRODUCTION

The Kremmling Field Office (KFO) is proposing to conduct treatments on Bureau of Land Management (BLM) administered lands, to reduce hazardous fuels and roadside hazards.

Biological Assessment

Federal land management agencies must consult on any action that may affect a federally listed species. Section 7(c) (1) of the Endangered Species Act (ESA) requires a Biological Assessment (BA) be prepared if a listed species and/or critical habitat may be present in the action area. The ESA requires the BLM to develop information about the potential impacts of its proposed activities on threatened and endangered species before the agency commits itself to a particular course of action. Section 7(a) (2) of the ESA obligates all federal agencies to: "ensure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of critical habitat of such species…" This Biological Assessment is prepared in compliance with Section 7 (Interagency Cooperation) of the Endangered Species Act and 50 CFR 402.12, Biological Assessments.

The U.S. Fish and Wildlife Service (USFWS) provided the KFO with a list of threatened, endangered, candidate and proposed species that might occur on or within the vicinity of influence of the Proposed Action. This list was provided by USFWS to KFO, via email from Creed Clayton on March 18, 2011 and verified online on March 1, 2013. http://ecos.fws.gov/ipac/wizard/trustResourceList!prepare.action).

This Biological Assessment will analyze the effects of the Mule Creek Fuels Reduction Project on eight threatened and endangered species. Effects to these species are analyzed in terms of implementing the proposed action.

Consistency Determination between the Proposed Action and the Canada Lynx Conservation Assessment and Strategy

Ruediger *et al.* (2000) identify project planning objectives and standards to provide a consistent and effective approach for conserving the Canada lynx and its habitat on federally-managed public lands in the lower 48 states. The proposed actions addressed in this biological assessment were designed in consideration of the objectives, standards and guidelines identified in the *Canada Lynx Conservation Assessment and Strategy* (Ruediger *et al.* 2000) and are consistent with those recommendations.

Consultation History

Informal consultation was completed for the Kremmling Field Office Fire Management Plan (KFO FMP) in November of 2002. The KFO FMP and Environmental Assessment (EA) examined wildland fire management and prescribed vegetation treatments on BLM administered lands in the Kremmling Resource Area. The FMP EA serves as a programmatic analysis (general guidance) for "fuel hazard reduction" treatments (vegetation treatments) that could

affect listed species of animals and plants. Timber harvest techniques that are similar to the proposed Mule Creek Fuels Reduction Project are addressed in the FMP Environmental Assessment and resulting consultation report prepared by U.S. Fish and Wildlife Service.

In addition, a Biological Assessment for the Owl Mountain Beetle Salvage Project, a similar timber harvest project located in Jackson County, was prepared and approved by the USFWS February 4, 2004. Also, Biological Assessments for the Little hO Salvage Project (2007), and Jensen Creek/Grouse Mountain Communication Site Fuels Project (2008) are similar timber harvest projects located in Grand County, that were prepared and approved using the Endangered Species Act counterpart regulations (50 CFR 402.30 to 402.34) for National Fire Plan activities. In addition, the Black Mountain Fuels Reduction Project (2012) was prepared using the Colorado lynx programmatic screens as per the September 8, 2010, Programmatic Consultation Agreement for Canada Lynx in Colorado between the BLM and FWS. All four BAs resulted in a "May affect, not likely to adversely affect" determination for Canada Lynx. These BAs are site-specific reports prepared for prescribed timber treatments incorporating guidance from the KFO Fire Management Plan, which would protect listed species and their habitat that could occur in the project area.

II. PROJECT DESCRIPTION

PROJECT BACKGROUND

Disturbances are ecological processes that affect the structure, function, and composition of ecosystems. Ecosystems experience multiple disturbances, such as wind events, bark beetles, and fire. Disturbances often leave behind a mosaic of vegetative conditions.

Disturbances such as Mountain Pine Beetle (MPB) infestations are natural processes that affect the structure, composition, and function of forest ecosystems. The Mountain Pine Beetle is the most significant cause of mortality in mature lodgepole pine (*Pinus contorta*) stands and a key disturbance agent influencing wildlife habitat. Many areas of the Kremmling Field Office (KFO) are currently experiencing severe outbreaks of MPB, including within the Mule Creek Action Area. The Mule Creek Action Area and adjacent areas are dramatically changing as a result of the MPB activity and stands are highly susceptible to infestation.

The project area experienced a MPB epidemic, and 85-95 percent of the mature lodgepole pine in the area was killed. High volumes of fuels from MPB mortality could lead to high intensity and, potentially, higher severity wildfires. Hazardous fuels concentrations are concerns because of the existing and proposed development on adjacent private land. Extreme fire behavior attributes create safety concerns for fire fighters, and limit protection abilities to nearby homes and improvements. There is a need to address hazardous fuels that may increase the intensity, severity of, and limit the ability to control wildfire in this area. There is a need to salvage the dead timber before it deteriorates, and loses its value as saw timber or other forest products.

The Mule Creek Fuels Reduction Project is not intended to stop or control the MPB infestation nor is it intended to treat every acre. Rather it was initiated to manage the health, diversity, and productivity of the forested landscape where there is an existing road system and previously vested interests in sustainable forest management.

The project is located in a WUI identified in the December 2006 Grand County Community Wildfire Protection Plan, and is dominated by mature lodgepole pine forests characterized by a low frequency, stand replacement fire regime. There are approximately 30 homes located along GCR3 and Grand County Road 34 that would be considered an at-risk community. Many private landowners have expressed concern about the beetle infestation and resulting loss of mature lodgepole pine trees. In efforts to suppress the beetle infestation, some of these landowners have treated lodgepole stands on their properties and have requested that the federal government treat adjacent BLM lands to suppress insect population and reduce fuels across a broad landscape.

Desired Condition

The desired condition for the Mule Creek Project Area is an area free from safety hazards due to fuel accumulation and falling dead and dying trees.

Purpose and Need for Action

The purpose of the Mule Creek Project is to reduce the amount of existing fuels and hazard trees to provide a degree of protection to the public. The project will also improve vegetation diversity, vigor and health, and improve wildlife habitat and big game winter range.

The need for the Mule Creek Project is to restore the Project Area to a more healthy forest condition by:

- Reforesting areas and habitats lost to beetle infestations.
- Reduce the number of acres of Fire Regime Condition Class 2 and 3, this will help reduce the risk of catastrophic fire,
- Reduce the fire intensity to and from adjacent at-risk communities,
- Reduce the fuel loading of dead and beetle killed trees, and increase firefighter and public safety in the Mule Creek area.
- Mimicking natural disturbance processes while maintaining wildlife habitat.
- Providing a mosaic and diversity of wildlife habitat conditions through time.

DESCRIPTION OF THE ACTION AREA

The Mule Creek Action Area is bounded by Grand County Road 3 on the west, Brinker Gulch to the north, several unnamed ridges on the east and Horseshoe campground on the south. Total Geographic Area acres are 14,700 (Figure 1).

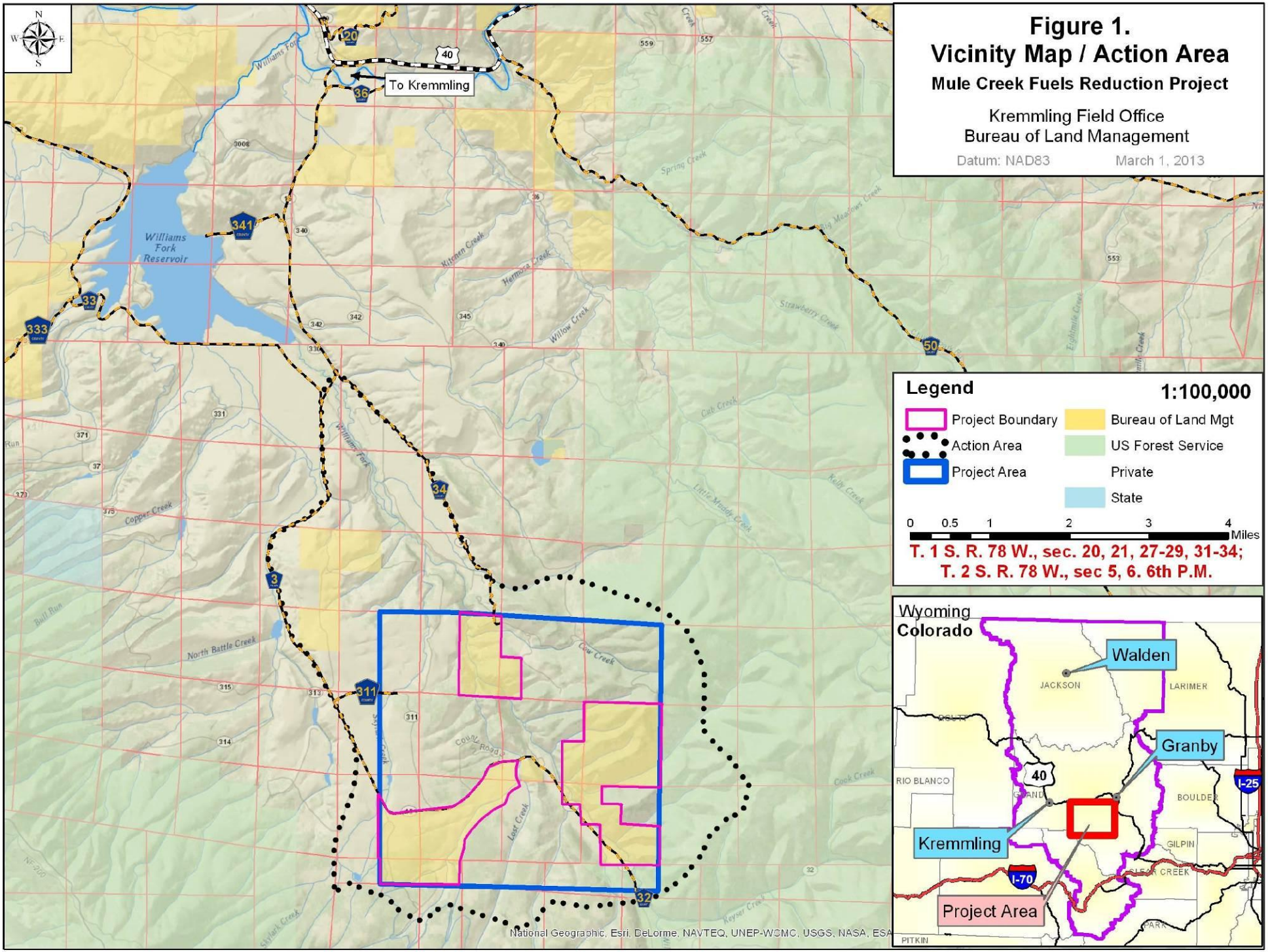


Figure 1.
Vicinity Map / Action Area
Mule Creek Fuels Reduction Project
Kremmling Field Office
Bureau of Land Management
Datum: NAD83
March 1, 2013
To Kremmling
Williams Fork Reservoir
Legend
1:100,000
Project Boundary
Action Area
Project Area
Bureau of Land Mgt
US Forest Service
Private
State
0 0.5 1 2 3 4 Miles
T. 1 S. R. 78 W., sec. 20, 21, 27-29, 31-34;
T. 2 S. R. 78 W., sec 5, 6. 6th P.M.
Wyoming
Colorado
Walden
Granby
Kremmling
Project Area
JACKSON
LARIMER
RIO BLANCO
BOULDER
GILPIN
CLEAR CREEK
PITKIN
I-70
I-25
40
National Geographic, Esri, DeLorme, NAVTEQ, UNEP-WCMC, USGS, NASA, ESA

DESCRIPTION OF THE PROJECT AREA

The project area is located on what is commonly called Mule Creek, approximately 15 miles southeast of Kremmling, Colorado. Geographic location of the Mule Creek Fuels Reduction Project is T. 1 S., R. 78 W., sec. 20, 21, 27-29, 31-34; T.2 S., R. 78 W., sec 5, 6; 6th P.M. Access would be provided via Grand County Road (GCR) 3 and 34 off of US Highway 40. The project area is mostly within lands managed by the BLM and covers approximately 2,440 acres. 100 acres of U.S. Forest Service lands are also within the project area (Figure 2).

The first unit, Skylark, is located along Grand County Road 3 (GCR3) and consists of 890 acres of BLM land and 100 acres of Forest Service lands. Skylark (T. 1 S., R. 78 W., sec. 28, 29, 31-33, T. 2 S., R. 78 W., and sec. 5-8) is bordered by GCR3 to the north, Mule Creek to the east, private land to the west and Forest Service lands to the south. The Skylark area consists of previously irrigated meadows with stands of lodgepole pine and aspen conifer mixes along the meadows. The area receives heavy use by hunters during the fall hunting season.

The second unit of the Mule Creek project, Morgan Gulch, is located along GCR 3 approximately one mile east of Skylark. Morgan Gulch (T. 1 S. R. 78 W., sec. 27, 28, 33-34), is bordered by private on the north, south, and west side; the Williams Fork River also borders the area on the west side. The Forest Service borders the area to the east; the area has a total of 1,150 acres mostly lodge pole pine with some spruce and fir, and open sage meadows on southern exposures.

The third unit, Cow Creek (T. 1 S., R. 78 W., sec. 20, 21) is located along Grand County Road 34 approximately one mile north of Skylark. Cow Creek is surrounded by private land. The Williams Fork River runs through the area; the total acreage for the this area is 432, and has mostly lodge pole pine with some spruce, ponderosa pine, and fir, with open sage meadows on southern exposures.

Elevations within the project area range from 8,500’ to 9,500’. Topographic features are typical of mountain regions, with rolling to steep terrain (e.g., 10-60% slope), saddles and ridges. Lodgepole pine dominates the area and, to a lesser degree, a mix of Engelmann spruce, limber pine, aspen, Douglas-fir and subalpine fir exist as part of the forested stands. Big sagebrush, other shrub-steppe and meadow complexes exist. Forested stand conditions can be described as, in the non-managed stands, mature forests with active insect and disease activity. Most stands in this cover type had a natural establishment following the last stand-replacement disturbance, such as fire, insect outbreak, or both.

Past management, such as timber harvesting and grazing, has occurred and continues to be a distinct part of the area’s character. Both summer and winter recreation is evident, and the area can be popular for hunting, fishing, hiking, biking, sightseeing, and camping.

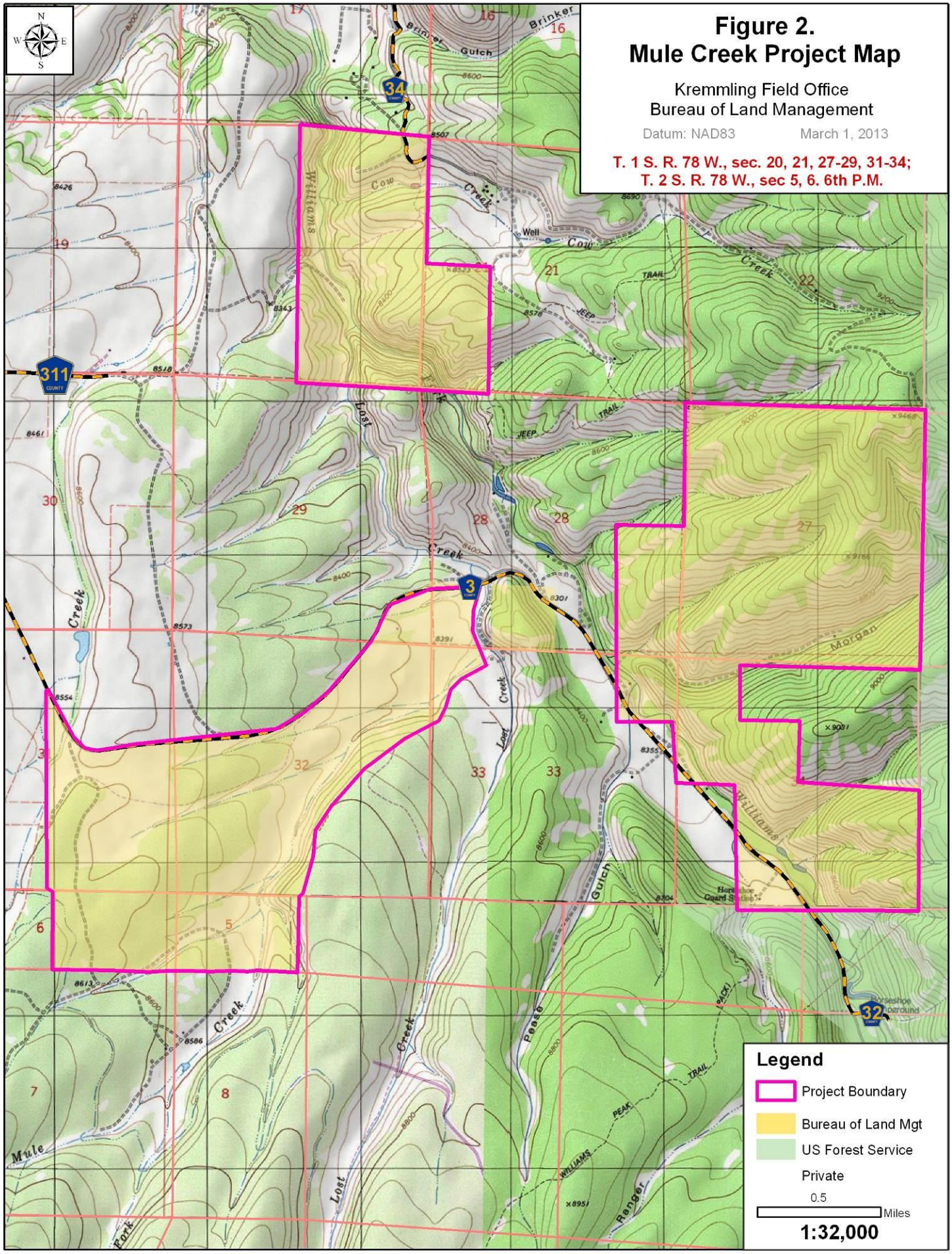


Figure 2.
Mule Creek Project Map
Kremmling Field Office
Bureau of Land Management
Datum: NAD83
March 1, 2013
T. 1 S. R. 78 W., sec. 20, 21, 27-29, 31-34;
T. 2 S. R. 78 W., sec 5, 6. 6th P.M.
Legend
Project Boundary
Bureau of Land Mgt
US Forest Service
Private
0.5
Miles
1:32,000

Existing Condition

The developing mountain pine beetle epidemic has dramatically increased the susceptibility of the area to fuel accumulation, associated fire hazard, and hazard trees. The lack of recurring wildfire in the project area has resulted in the development of single-age class, over-mature lodgepole pine (*Pinus contorta*) stands. These over-mature stands of primarily lodgepole pine pose a catastrophic fire threat to the nearby residential community holdings, individual homes and ranches. The dense lodgepole pine vegetation is also crowding out more desirable wildlife forage species for wildlife and big game species.

Of the 2,440 acres, less than one percent is FRCC 1 (15 acres), 56 percent is FRCC 2 (1356 acres), 41 percent is FRCC 3 (1003 acres) and three percent is other (66 acres, not able to burn, rock, water, roads, etc.). Under Condition Class 3 fire regimes have been significantly altered from their historical range, the risk of losing key ecosystem components is high, and fire frequencies have departed from historical frequencies by multiple return intervals. Fire Regime Group III has a fire return interval of 35-100+ years with moderate variation due to year to year variation in grass production related to drought and moisture cycles.

In addition, Mountain Pine Beetles (MPB) are currently infesting the 90-110 year old lodgepole pine in Grand County, Colorado including the Mule Creek area at epidemic levels. The majority of lodgepole pine stands in northern Colorado have been decimated by a Mountain Pine Beetle (MPB) epidemic within the past 5 to 15 years. Initial reconnaissance and analysis in the Mule Creek area provided findings of significant MPB mortality in the mature, greater than 7 inch DBH (diameter at breast height) lodgepole pine stands.

Studies have indicated that lodgepole pines killed by MPB begin falling approximately 5 years after mortality. As dead trees begin to fall, they pose a considerable threat to public safety, which would likely increase as tree failure accelerates. The Mule Creek area is a popular recreation site and is frequently used for hunting access. Falling trees may block access routes and damage fences along property boundaries.

DESCRIPTION OF THE PROJECT

KEY FEATURES

Table 1 - Key Features of the Proposed Action	
Key Feature	**Description**
Total Area Treated	2000 acres
Prescribed Fire	1500 acres
Mechanical Treatment	300-525 acres
System Road Construction	0.0 miles
System Road Maintenance within the Project Area (spot grading, culvert replacement.)	1.0 miles
Temp. Road Construction within the Project Area (to be closed, ripped and slashed in following project)	< 2.0 miles
Re-opening of Old Roads (used temporarily during harvest)	0 miles
Buck and rail Fencing	4500 feet

The proposed action would use fire, both natural and prescribed, and mechanical treatments to bring the FRCC to a more balanced condition. A more desired FRCC would have a higher percentage in FRCC 1 and FRCC 2, rather than in FRCC 2 and FRCC 3. The proposed fuel treatment area within the Mule Creek Project would be approximately 2,000 acres within an overall area of 2,440 acres.

Fire Management: Within the project area, the proposal is to treat up to approximately 1,500 acres with prescribed fire by forms of broadcast burning, by hand or aerial ignition (helitorch or plastic sphere device, PSD), and pile burning.

Treatments primarily include burning stands of beetle-killed lodgepole pine to reduce hazardous fuels, modify fire behavior, and accelerate the natural stand regeneration process. Implementation of these burns would result in surface fire behavior with a minor component of torching and crown fire behavior. Treatments also include burning in aspen and sagebrush to bring these fuels types into a more favorable FRCC. In some cases vegetation may be cut by hand and cleared to create a fire containment line.

The type of fire to be utilized would vary across the project from low intensity ground fire (flame heights 1-3 ft.) in meadow areas; to high intensity stand replacement type prescriptions (flame heights 10-300 ft.) in the lodge pole pine stands. The use of this management tool primarily would support the desired FRCC goals, and improved forest-woodland health, an increase in wildlife habitat, and catastrophic event mitigation. Objectives for areas where fire is the primary tool are:

- 30-90 percent reduction of dead and down lodge pole pine;
- Increase crown spacing of forested area;
- Increase areas that support growth of grass and forbs;
- Increase open areas that would be useable for safety zones in future firefighting efforts.

If a natural ignition were to occur within the project boundary, the ignition would be used to meet the same objectives as prescribed fire. Current roadway corridors would be used for holding lines, along with natural barriers and perennial streams, with an effort to keep fire off of private land and within the project boundaries.

Mechanical Treatments: Approximately 300-525 acres would be treated by hand or mechanical treatment with the same objectives as prescribed fire, but used in accessible areas or areas where treatments are better suited than fire. Treatments for mechanical areas are as follows:

Proposed treatments may include: Cutting and removing infested trees (sanitation), susceptible stands of lodgepole pine, to reduce the ability of beetles to spread. Cutting and removing dead trees, possibly with clearcuts, to reduce heavy fuel accumulations. Fuels mitigation (mix of salvage, sanitation, mastication, chipping, slash treatment and removal of ladder, or small diameter, fuels), and treating existing vegetation to stimulate aspen regeneration.

- Remove all identified dead tree species identified by the BLM

- Leave all identified live aspen, ponderosa pine, Spruce, Fir, lodgepole pine and Douglas Fir trees identified by the BLM
- Live trees over 5" in D.B.H would be cut to reduce windthrow.
- Mechanical areas would have the product removed for salvage and or piled;
- All piles would be treated with fire, and or mulched by machinery.

Mechanical treatments are treatments by machinery such as Bullhogs, Hyro-axes, Timbco, Fella-bunchers, skid steers, chainsaws, and Fecons. Treatments would be conducted by the BLM or contractors. Vegetation treatments could include both timber sale and service contracts, and may be done through a stewardship contract or by BLM employees.

The proposed project would salvage dead and dying lodgepole pine from four treatment units. Units may resemble clearcuts with some advanced natural regeneration after harvest. Machine piling of the landing slash, lop and scatter of the unit slash, and burning the piles would be done to manage the slash. Vegetation would be restored by natural regeneration. No new road construction would be required. Temporary roads in the Morgan Gulch and Cow Creek areas would be constructed, no more than two miles would be needed. In addition, 90 acres in the Morgan Gulch area would be treated to reduce the fuels hazard on BLM lands along the private land boundary, possibly with no commercial harvest of timber. Fuels treatment in the Morgan Gulch area would consist of opening up the crowns within the stand by salvaging the dead timber, piling the slash and existing fuels, and burning the piles.

UNIT DESCRIPTIONS

The Mule Creek Project is broken up into three units; Skylark, Morgan Gulch, and Cow Creek. Each area would breakdown as follows:

Skylark (Figure 3) would be made up of two broadcast prescribe burn units, one mow area, and two mechanical treatment areas. There would also be improvements to the main road to help with ingress and egress for the prescribed fire units or a wildfire (approximately 1 mile). A buck and rail fence will also be built to help limit unauthorized vehicle travel approximately 4,500 feet would be needed. The first burn unit is approximately 285 acres, located in the southwestern portion of Skylark. A 248 acre removal of lodgepole pine, along with other dead tree species is proposed in the forested areas. A mow line along the southern boundary is proposed to help in holding efforts for the prescribed burn. The mow line would be a maximum of 20 feet wide and follow an existing road, and would then cut through the meadow stopping a 100 feet from Mule Creek. The machinery mow line would stop 100 feet from Mule Creek proper, from there a wet line using pumps and or an engine(s) would be used to keep the fire 100 feet from Mule Creek proper. Burn unit two is located north of burn unit one, and is approximately 325 acres. Burn unit two consists of sagebrush on the west end and an old hay meadow on the east end, with some dead standing and dead and down lodge pole in the middle of the unit. A maximum of a 20 foot wide mow line along the southwestern end would be considered to help hold the burn and would be located along an existing road. The preferred method would be mechanical removal, and use fire as an option if mechanical wasn't viable. Fire could also be used after the mechanical to help improve ground vegetation. Broadcast burning would likely be in the fall, but could happen in the spring and or summer if conditions were favorable.

Morgan Gulch (Figure 4) would be made up of one prescribed burn unit approximately 283 acres and two mechanical treatment units approximately 132 acres. The two mechanical treatments would be looked at for salvage and or piling. The area farthest to the east would be a 300 foot wide treatment about 45 acres in size. The second would be a treatment of 87 acres. A temporary road may need to be put in along the top of the unit for hauling the material out of the unit. No more than one mile of temporary road would be needed.

Cow Creek (Figure 5) would be made up of one mechanical treatment area consisting of 133 acres. This area would be evaluated for timber salvage and or piling. A temporary road may need to be constructed for hauling the material out of the unit. No more than a one mile of temporary road would be needed.

The proposed action would not exceed these treatment numbers. Exact treatment areas within the 2,440 acres of proposed project area and type of treatment would be identified during implementation. The proposed treatments would start in 2013 and continue for multiple years, the project should be completed by 2018.

Fuels treatment applications including prescribed fire, mechanical, hand, and natural ignitions desired objectives would be applied throughout the project area. Upon completion, the project area vegetation is expected to have a treated mosaic appearance of 40-90 percent treated area versus untreated area. Post-fuels treatments would include noxious weed control, possible broadcast or drill seeding and erosion control measures, if needed.

The slash treatment would include hand or machine piling; although mastication, public firewood gathering, removal, and lop and scatter may also be used. Hand piling and or machine piling would be the most preferable option, without a blade, and burning by the BLM would be preferred. If mastication and lop and scatter are utilized, it is likely that broadcast burning would be used to reduce fuel loading.

Transportation: From U.S. Highway 40, Grand County Roads (GCR) 3 and 34 provide public access to the project area. Both of these roads are maintained on a regular basis. One existing BLM road within the Skylark project area would need to be improved and maintained (approximately 1 mile). To facilitate harvest, it is estimated that a limited amount (less than 2 miles) of temporary road may be constructed to decrease skidding distances or provide access to landings adjacent to the main roads. Temporary road locations would be approved by the BLM prior to development. After harvest operations, temporary roads would be out-sloped, and roads and landings would be scarified as necessary. Temporary roads, landings and, as necessary, major skid trails, would be seeded with a BLM approved mixture of forbs and grasses by the purchaser. Temporary roads, or portions thereof, would also be slashed in. Traffic is expected to increase on access roads approximately one to two vehicles per day for the length of the project.

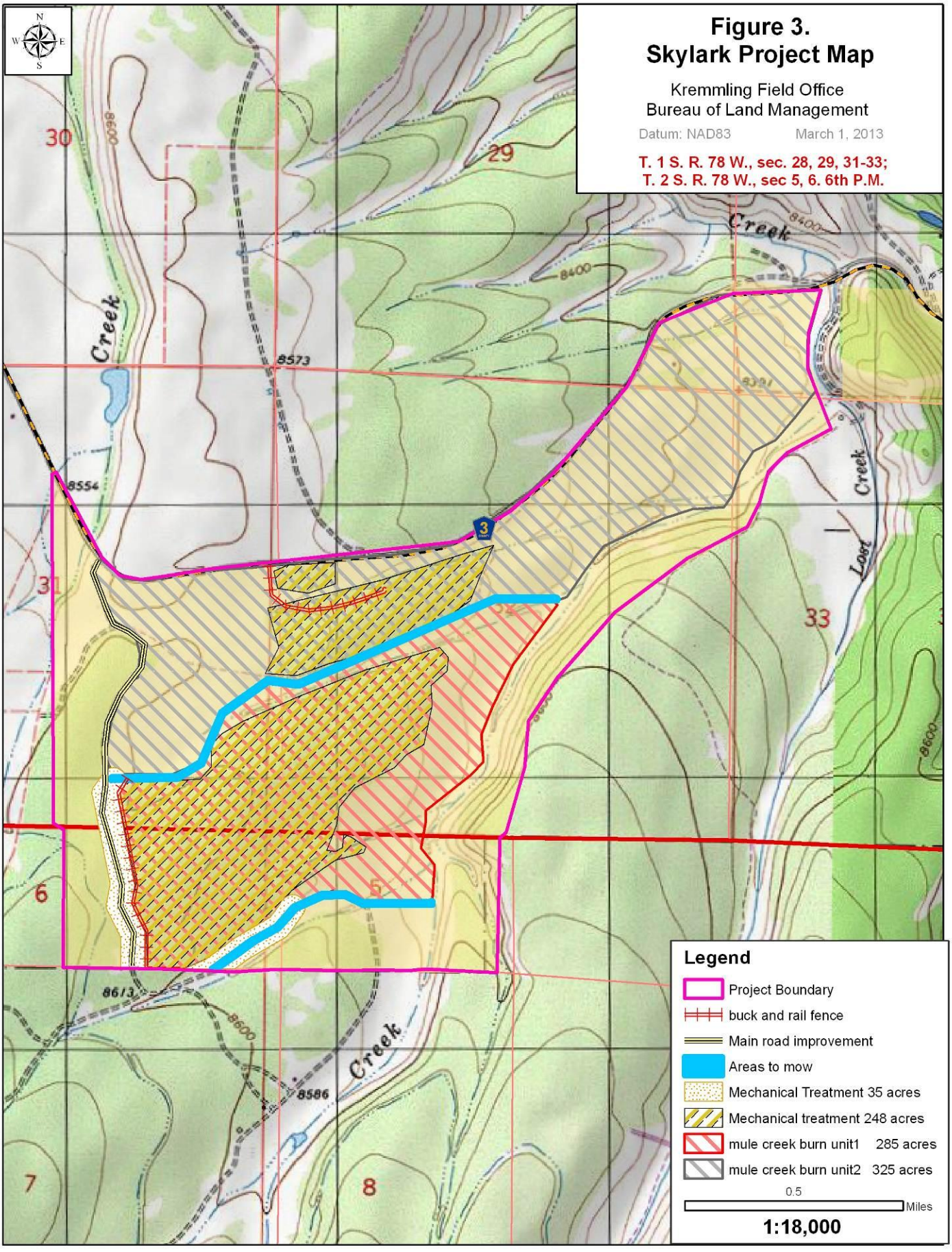


Figure 3.
Skylark Project Map
Kremmling Field Office
Bureau of Land Management
Datum: NAD83
March 1, 2013
T. 1 S. R. 78 W., sec. 28, 29, 31-33;
T. 2 S. R. 78 W., sec 5, 6. 6th P.M.
Legend
Project Boundary
buck and rail fence
Main road improvement
Areas to mow
Mechanical Treatment 35 acres
Mechanical treatment 248 acres
mule creek burn unit1 285 acres
mule creek burn unit2 325 acres
0.5
Miles
1:18,000
30
29
31
33
6
5
7
8
Creek
Creek
Creek
Creek
Lost
8573
8554
8613
8586
8400
8600

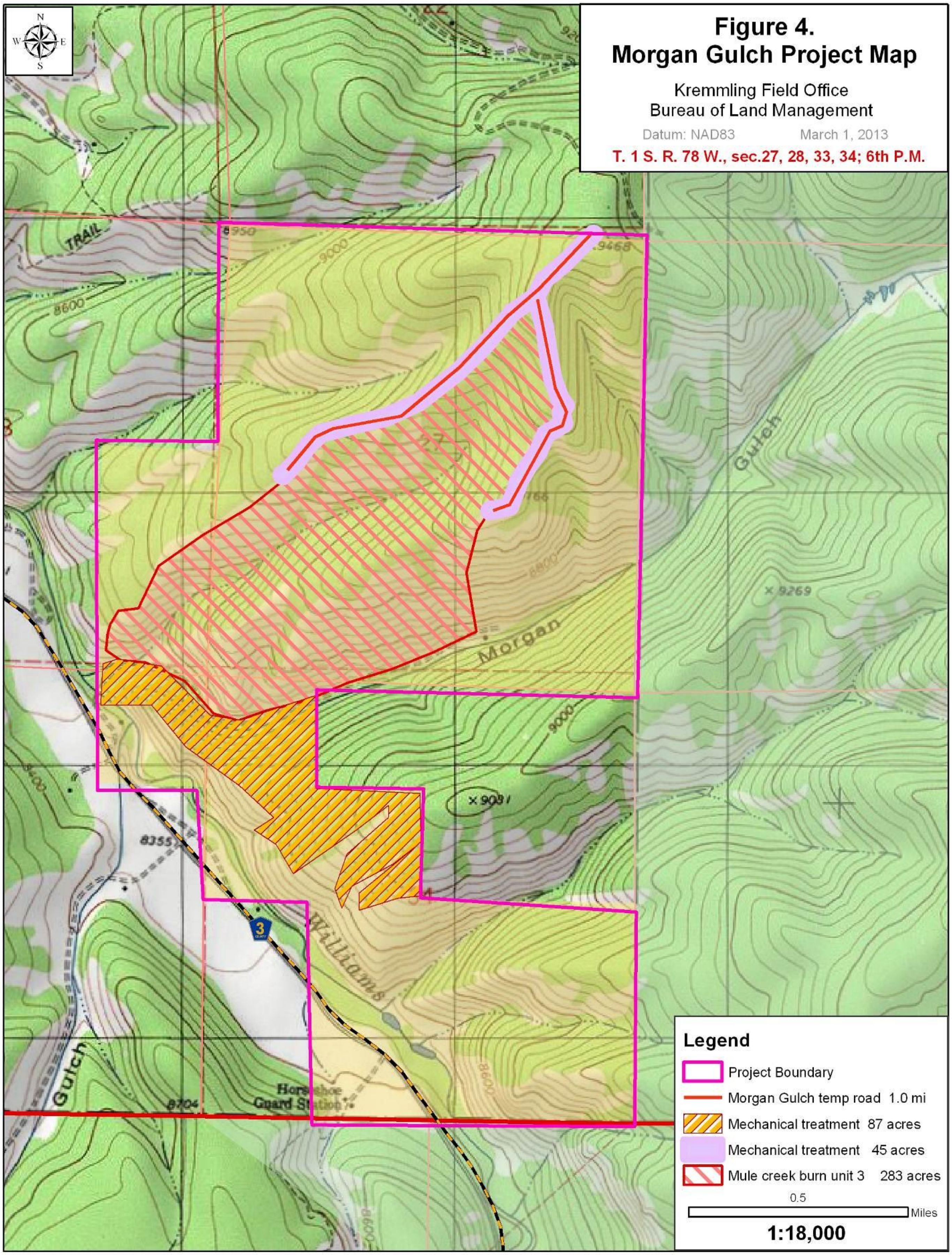


Figure 4.
Morgan Gulch Project Map
Kremmling Field Office
Bureau of Land Management
Datum: NAD83
March 1, 2013
T. 1 S. R. 78 W., sec.27, 28, 33, 34; 6th P.M.
Legend
Project Boundary
Morgan Gulch temp road 1.0 mi
Mechanical treatment 87 acres
Mechanical treatment 45 acres
Mule creek burn unit 3 283 acres
0.5
Miles
1:18,000
Morgan
Gulch
Williams
TRAIL
Horseshoe Guard Station

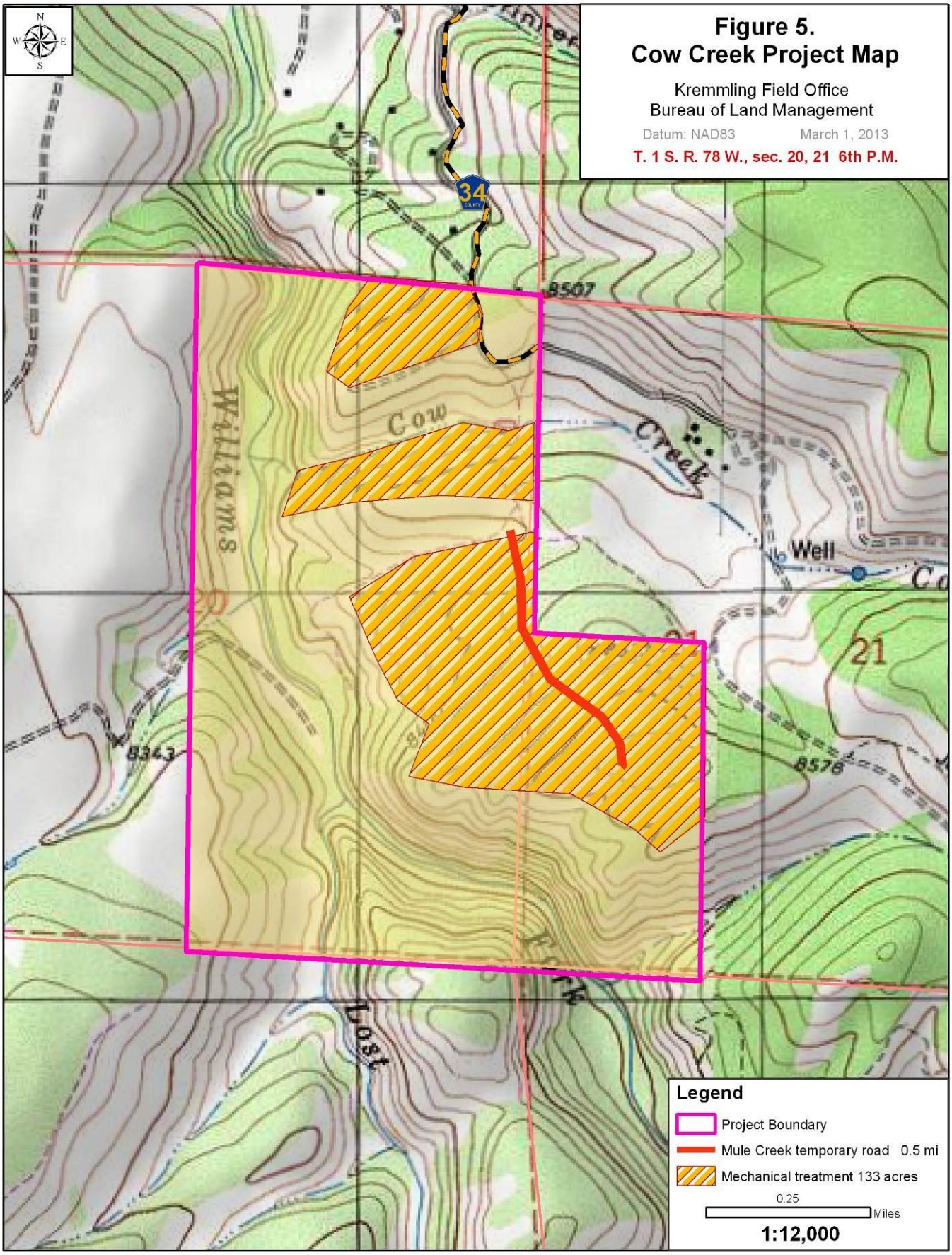


Figure 5.
Cow Creek Project Map
Kremmling Field Office
Bureau of Land Management
Datum: NAD83
March 1, 2013
T. 1 S. R. 78 W., sec. 20, 21 6th P.M.
34
8507
Williams
Cow
Creek
Well
21
8343
8578
Lost
Legend
Project Boundary
Mule Creek temporary road 0.5 mi
Mechanical treatment 133 acres
0.25
Miles
1:12,000

PROJECT DESIGN CRITERIA:
The Project Design Criteria below are specific to wildlife. These measures are made part of the proposed project at the planning and design phase of the project to reduce or prevent negative impacts.

TABLE 2: Wildlife/TES Project Design Criteria

Action	Proposed Action
All treatment units will be outside of drainages- ephemeral to perennial—with a minimum of 100 hundred foot buffers for perennial streams and wetlands, a 50 buffer for non-flowing drainages.	X
If an active golden eagle nest has been located by the BLM biologist prior to any project activities or by any personnel in the area during the project activities, there would immediately be a 0.25 mile no surface disturbance stipulation put into effect and a 0.5 mile seasonal restriction where no activities would be permitted December 15 through July 15.	X
Burn areas will be rested for a minimum of two growing seasons. After two years, if the vegetative cover is less than measured pre-burn conditions, then the meadows will be drill seeded (other areas broadcast seeded) and rest would continue until pre-burn percent cover is achieved. If more than 50% of the ground cover is consumed by the fire, then erosion control measures would be required.	X
All machinery used within the project boundary would be cleaned prior to working within the project, to help reduce the spread of noxious weeds.	X
Pre and Post treatments for noxious weeds would be done to help control the spread of noxious weeds.	X
Sagebrush areas that contain higher than 5% rabbitbrush (Chrysothamnus nauseosus) cover would not be targeted by ignitions during prescribed fire.	X
Temporary road construction/reconstruction would not occur during periods of wet or frozen soils.	X
After harvest operations, temporary roads would be outsloped, and roads and landings would be scarified, as necessary. Temporary roads, or portions thereof, would also be slashed in.	X
Operations from December 1 of one year until June 1 of the next year may be limited or suspended depending upon snow conditions and big game requirements.	X
Effects to understory vegetation would be minimized to benefit snowshoe hare and lynx. Patches of trees with dense understory would be retained.	X
To protect potential lynx kittens, no mechanical treatments would occur in Aspen/spruce-fir or Spruce-fir stands.	X

III. HABITAT OVERVIEW

Plant Cover Type Summary

General vegetation zones present in the Mule Creek Project Area include lodgepole pine forests, Douglas fir, Englemann spruce-subalpine fir forests, sagebrush-steppe, aspen, and riparian areas. These plant communities are segregated along gradients of elevation and topography, which directly affect important plant growth determinants such as temperature, effective precipitation and hydrologic regime. Based on topographic data for the Mule Creek project area, the average elevation is approximately 9,000 feet. Approximately 53% of the project area is forested (90% lodgepole, 4.5% Douglas fir, 5% aspen, and <1% spruce-fir). Higher elevation and northerly and easterly aspects have a few small stands of Engelmann spruce and subalpine fir (spruce-fir) and Douglas fir. The lower elevations and southerly aspects are dominated by lodgepole pine. Mixed in with the lodgepole are scattered pockets of aspen. These lower elevation stands are interspersed with a number of small grass and sagebrush openings.

Lodgepole pine cover type

Lodgepole pine forests are extensive in the western U.S. It is one of the more widely distributed of the North American pines. In Colorado and in the KFO, it represents a major component of forest habitat. It is an important species for recreational uses, wildlife habitat, watershed, forage, and timber. Lodgepole pine may have serotinous seed cones (cones that do not open at maturity and persist on the tree), or non-serotinous cones (cones which open at maturity and disperse their seed), or both. Serotinous cones open and release the stored seed when heated. This is probably an adaptation to fire or other rapid stand disturbance. Lodgepole pine is intolerant of shade from above and competition from other trees. It generally forms pure stands. In the absence of fire, lodgepole pine is usually replaced by more shade tolerant species like Engelmann spruce and subalpine fir. It is the major early species on habitats classified as *Abies lasiocarpa/Vaccinium scoparium* and *Abies lasiocarpa/Carex geyeri*.

The succession from lodgepole pine to more stable climax conditions may proceed rapidly or slowly, depending on a variety of factors. In this area, stands may begin "breaking up" at 90 to 110 years. That is, they become more susceptible to insects, disease, and competition from other species. Most lodgepole pine stands in the assessment area are considered the successional precursor to the spruce fir cover type. If undisturbed, the lodgepole stands will be replaced by the more shade tolerant spruce and fir. Lodgepole pine has the ability to quickly and vigorously re-establish on disturbed sites. This is especially true after fires. As lodgepole pine stands mature, they become susceptible to attack by mountain pine beetle. Stands that are over 80 years old, on sites under 9,500 feet elevation, and relatively dense have reached a condition that is hazardous for attack by mountain pine beetle. (Kent, 2001)

Sites and landscapes that are now occupied by lodgepole pine are the result of past ecological disturbance. Two of the more common disturbances are bark beetles and fire. Bark beetles often attack and kill most of the trees in a stand. Fire follows, taking advantage of the large accumulation of fuels and burns over the area. Fire can also occur without the predisposition created by bark beetles. In either case, lodgepole pine is well adapted to re-establish dense stands, which after 10 or 12 decades, are again subject to the beetle/fire cycle. The current situation in the analysis area is such that conditions are right for mountain pine beetle to attack and kill standing pine on a large scale.

The lodgepole pine cover type in the Mule Creek project area comprises about 90 % of the total forested cover type. Of this, 15% is in the seedling/sapling size class (less than 4.9 inches in diameter), and 85 % is in the medium/large size class (5.0 to 15.9 inches in diameter). A majority of the stands are greater than 80 years old. Diameter at breast height (dbh) ranges from 7 to12 inches.

Engelmann spruce/subalpine fir cover type

The Engelmann spruce-subalpine fir cover type is widespread in the central and southern Rocky Mountains, and is a dominant forest type in Colorado. About 70% of the spruce-fir cover-type occurs in Colorado, and 89 % of that is under public ownership (2.6 million acres). Much of the spruce fir cover type in Colorado is mature, or climax, and is generally declining in growth and vigor. (Alexander, 1987)

Engelmann spruce is a long-lived tree, capable of reaching relatively large size. They often reach 250 to 450 years in age, and individuals 500 to 600 years old are common. Spruce can maintain good growth rates, even at large size. It has a shallow root system, characteristically good crown form, and maintains good live crown ratios. It is rated tolerant in its ability to endure shade, but is less tolerant of shade than subalpine fir. Engelmann spruce is considered co-climax with subalpine fir. In this area, it rarely exists in pure stands, and most frequently exists in mixes with subalpine fir. Typical stands here contain 40 to 60% spruce, and often contain a minor component of lodgepole pine.

Subalpine fir is somewhat shorter-lived than spruce, and does not reach similar size. They are slow- growing and susceptible to a variety of rots, diseases, and insect pests. Fir is very tolerant of shade, and is able to persist in the understory for many years. Fir is successful at regenerating from seed, but it can also regenerate through layering.

The spruce-fir cover type in the Mule Creek area comprises less than 1% of the total forested cover type. Of this, 100 % is in the medium/large size class (5.0 to 15.9 inches in diameter). A majority of the stands are greater than 80 years old. Average diameter at breast height (DBH) ranges from 9 to12 inches.

The spruce-fir type is considered a climax community. It can persist undisturbed for decades. It is normally displaced by infrequent, large-scale events, such as fire, windstorm, insect epidemics, or logging. The type of disturbance is the most influential factor in how the following stand develops. For example, fire usually creates conditions favorable to lodgepole pine and aspen. Those stands develop until conditions are again favorable for spruce and fir to become re-established as cohorts. If spruce beetle is the disturbance agent, resulting stands are dominated by fir until spruce (the longer-lived species) regains its position. Stand structure is modified by spruce beetles. They reduce the average age of surviving trees, lower the average diameter and height of the stand, and reduce the percentage of spruce. They lower the density (trees per acre) and leave intermediate sized trees as the dominant and co-dominant spruce.

Disturbance History

Disturbances are a part of ecosystem processes. Forests are adapted to disturbances. Short-term changes are dramatic and substantial, but forests will regenerate and thrive again. In the central Rocky Mountain ecosystem, disturbance is the critical factor in maintaining co-existing species. Without disturbance, climax species such as subalpine fir and Engelmann spruce would replace disturbance dependent species such as lodgepole pine and aspen. Two of the more common

disturbances are bark beetles and fire.

Bark Beetles

Bark beetles are always present in the forest in low endemic numbers. In attacking conifer trees the beetles introduce a blue stain fungus into the tree's living tissues interrupting the transport of water and nutrients, which eventually kills the tree. The tree's only defense against beetles is its sap, or resin, which the trees use to "pitch out," attacking beetles. Younger, healthier trees produce more sap, thus are better able to ward off attack. Trees growing in crowded conditions or ones that are old, diseased, or weather/fire damaged, produces less sap, and thus is more readily and successfully attacked by beetles. Under endemic conditions, the beetles cause periodic, very low amounts of single tree and small group mortality of what are typically the unhealthiest trees in the stand, providing important snag habitat to dependent wildlife. Endemic beetle populations are naturally regulated through cold winter temperatures and through predation by birds--such as woodpeckers, small mammals, and other insects.

Much like and possibly due to droughts, beetle epidemics are cyclic. When conditions are favorable, the beetle population increases to epidemic levels. A beetle epidemic is defined as the point in which annual tree loss is greater than annual tree growth, causing disturbances of normal relationships in the forest. Dense mature stands have little or no defense against these beetles, and are extremely susceptible when these insects reach epidemic levels. When beetle populations increase, even healthy trees are subject to infestation. Beetles often kill entire stands of trees during an epidemic. The various types of bark beetles that exist are specific to certain tree species. For example, the mountain pine beetle is specific to the pine species such as lodgepole, ponderosa, and limber, while the similar spruce beetle is specific to the spruce species such as Engelmann and Blue.

Fire

In the central Rocky Mountain ecosystem, disturbance is the critical factor in maintaining co-existing species. Without disturbance, subalpine fir and Engelmann spruce would replace disturbance dependent species such as lodgepole pine and aspen. The presence of lodgepole pine and aspen at the lower and middle elevations of the analysis area is reflective of disturbance in the form of fire. Natural and human caused wildfires have been a major factor in forming the forests we see today. It is known that fire burned large portions of this area, playing an important role in the appearance of the landscape, and maintaining a mix of tree species in various successional stages. Lower elevations that tend to be drier have a shorter fire return interval, while wetter, higher elevations have a longer fire return interval.

Past Timber Harvest

Minimal timber harvesting occurred in the area until the early 1960's. Beginning at this time, large irregular-shaped clearcuts were harvested mainly in the head waters of Corral Creek, north of Williams Fork Reservoir. Following harvest, these clearcuts regenerated to predominantly lodgepole pine stands, along with a good mix of spruce and fir. Today these stands can be best described as young forests. No known timber harvests have occurred in or near the project area, likely due limited access and steep slopes.

The USFS has conducted several harvests and fuels treatments in the Williams Fork LAU over

the past 15 years. These include the Crimson, Ranger Gulch, Conveyor, Roadside Hazard, and some Blue Ridge units. All of these are on the east side of the LAU.

Existing Insects and Disease

Dwarf mistletoe

Dwarf mistletoe is the dominant disease present in lodgepole pine stands throughout the project area. Mistletoe is a parasitic plant that deforms trees, causes rot, and weakens the tree so that it is more susceptible to insects and other diseases. Dwarf mistletoe is not a major concern in this area due to the high mortality from mountain pine beetle. Mistletoe dies once the tree dies and is no longer a concern. Mistletoe maybe be found in some of the understory lodgepole pine but is not a concern at this time.

Mountain Pine Beetle

Mountain pine beetle is the dominant insect affecting the project area. Lodgepole pine stands within the project area and surrounding area are estimated to have 70-90% mortality due to the beetle.

IV. SPECIES EVALUATED IN ACTION AREA

A. Action Area

The analysis was conducted for the various species at the following scale:

Canada lynx – The Action Area is the Williams Fork Lynx Analysis Unit (LAU).

Species Evaluated

An updated list was received by the USFWS on March 18, 2011 and verified online on March 1, 2013. The following species (Table 3) are the threatened (T), endangered (E), proposed (P) and candidate (C) species that occur on, may occur, or have the possibility of being affected, and/or have suitable habitat within the action area. Candidate species are organisms being evaluated for listing as threatened or endangered under ESA. These species presently have no legal protection under ESA, and under BLM Manual 6840 are not consulted on with USFWS. Candidate species and species with no habitat are evaluated no further in this document.

Table 3. Federally Listed Terrestrial, Aquatic and Botanical Species for the KFO, Grand County Colorado.

Category	Name	Suitable Habitat in or near the Action Area:	Species documented within or near the Action Area:	Basic Habitat Description
Terrestrial	Canada lynx *(T)* *Lynx canadensis*	*Yes*	*No*	Resident in early successional mixed conifer forests and also aspen/willow/shrub-steppe. Late-successional forests are used for denning and winter foraging forested types. Most likely to occur within established Lynx Analysis Units (LAUs).
Botanical	Osterhout milkvetch (E) *Astragalus osterhoutii*	*No*	*No*	Osterhout milkvetch is endemic to Grand County and restricted to highly seleniferous clay soils.
Botanical	Penland beardtongue (E) *Penstemon penlandii*	*No*	*No*	Penland beardtongue is endemic to Grand County and is only known from two locations along Troublesome Creek. The species is an obligate selenophile, restricted in this area to the Troublesome Formation of seleniferous shales
Aquatic	Bonytail (E) *Gila elegans*	*No*	*No*	Yampa, Green, and Colorado River systems
Aquatic	Colorado Pikeminnow (E) *Ptychocheilus lucius*	*No*	*No*	Yampa, Green, and Colorado River systems
Aquatic	Humpback Chub (E) *Gila cypha*	*No*	*No*	Yampa, Green, and Colorado River systems
Aquatic	Razorback Sucker (E) *Xyrauchen texanus*	*No*	*No*	Yampa, Green, and Colorado River systems
Aquatic	Greenback Cutthroat Trout (T) *Oncorhynchus clarki ssp. stomias*	*No*	*No*	Colorado River system, in the headwaters of the South Platte and Arkansas rivers.
Terrestrial	North American Wolverine (P) *Gulo Gulo luscus*	*Yes*	*No*	Alpine and arctic tundra, boreal and mountain forests (primarily coniferous). Usually in areas with snow on the ground in winter. Riparian areas may be important winter habitat. May disperse through atypical habitat. When inactive, occupies den in cave, rock crevice, under fallen tree, in thicket, or similar site.
Terrestrial	Yellow-billed cuckoo (C) *Coccyzus americanus*	*No*	No	Nests in tall cottonwood and willow riparian woodlands.
Terrestrial	North American Wolverine (C) *Gulo gulo luscus*	Yes	*No*	Inhabits boreal forests, tundra and lowland spruce forests that support extensive wetlands.
Terrestrial	Greater Sage-grouse (C) *Centrocercus urophasianus*	*Yes*	*Yes*	Inhabits sagebrush shrublands.

*"***No effect***" – when the action will have no effect on listed species or critical habitat, "***May affect, not likely to adversely affect***" -- where effects are expected to be insignificant (unmeasurable, and would not reach the level of

take) or discountable (extremely unlikely to occur), "***May affect, beneficial***" -- where effects are expected to be wholly positive without any adverse effects, ``***May affect, likely to adversely affect***" -- where effects are expected to be adverse or detrimental.

Of the twelve species that could be affected by the Mule Creek Fuels Reduction Project, three were dropped because BLM does not consult on candidate species, one was dropped because BLM does not consult on proposed species unless actions may result in jeopardy, and seven were dropped from further consideration because their range distributions are outside the action area or habitats necessary for their life requirements are not found within the action area. These species are briefly described as follows:

Osterhout milkvetch and Penland beardtongue
Osterhout Milkvetch (Astragalus osterhoutii) and Penland beardtongue (Penstemon penlandii) inhabit seleniferous, clayey soils derived primarily from the Niobrara Shale, the Pierre Shale, and Troublesome formations. These species predominately grow on relatively flat areas and barren knolls. No suitable habitat occurs in the proposed project area and the closest occupied habitat is 8 miles to the north.

Bonytail, Colorado Pikeminnow, Humpback Chub, and Razorback sucker
These species do not inhabit Grand County, however, the U.S. Fish and Wildlife Service has determined that water depletions in the Upper Colorado River basin, whose headwaters are in Grand County, may affect them. Since the proposed project does not involve water depletion from this basin, these species will not be addressed in this assessment.

Greenback Cutthroat Trout
This species inhabits clear, swift-flowing mountain streams within the Colorado headwaters. The nearest suitable habitat would be Corral Creek, 0.5 miles east of the project area. Records from BLM, Colorado Parks and Wildlife (CPW) and the Colorado Natural Heritage Program (CNHP) indicate that cutthroat trout are not present in the action area. The closest occurrence is approximately 9 miles northwest of the project area. Project activities will have no impact or depletion to the Colorado River water supply.

Proposed Species
North American Wolverine
The ESA requires BLM to conference with the FWS on actions that are likely to jeopardize a proposed species or cause destruction or adverse modification to proposed critical habitat. Since the BLM is generally not in a position to determine jeopardy, BLM policy is to confer on all discretionary actions that are determined to be May Affect, Likely to Adversely Affect. Conversely, BLM policy is to not confer on actions determined Not Likely to Adversely Affect.

The FWS identified climate change as the primary threat to wolverine along with lesser impacts from dispersed recreation. No critical habitat is being proposed at this time. The Mule Creek Fuels Reduction project is not expected to result in a May Affect, Likely to Adversely Affect determination. Therefore, the North American wolverine is not carried forward for further analysis.

V: SPECIES CARRIED FORWARD FOR ANALYSIS

Those Federally Listed species that may be affected directly, indirectly, or cumulatively by proposed actions were selected for further analysis. Other species were not selected for further analysis as described in the preceding table, Table 3.

Canada Lynx (*Lynx canadensis*) Federal Status: Threatened.

The Canada lynx (*Lynx canadensis*) was listed as threatened on March 24, 2000 (Federal Register: March 24, 2000 [Volume 65, Number 58]).

BACKGROUND BIOLOGICAL INFORMATION ON THE CANADA LYNX

1). Species and Habitat Information: Canada lynx habitat in Colorado primarily occurs in the subalpine and upper montane forest zones, typically between 8,000 and 12,000 feet in elevation. Forests in these zones typically contain deep winter snows and are dominated by subalpine fir, Engelmann spruce, and lodgepole pine although several mixed-conifer species may occur at lower elevations. A preference for these forest types, particularly spruce-fir associations, has been documented by radio-telemetry and tracking techniques associated with lynx reintroduced to Colorado (Shenk 2005-2010). Other habitats used by reintroduced lynx include spruce-fir/aspen associations and various riparian and riparian-associated areas dominated by dense willow.

Throughout North America, the distribution of lynx is closely tied to habitats that support an abundant population of snowshoe hare. These habitats are generally defined as regenerating stands that contain dense, small-diameter stems that provide both food and horizontal cover. Preliminary information from a local study indicates that snowshoe hares achieve their highest densities in spruce-fir forest types that contain approximately 5,600 to 10,000 trees per acre (TPA) with an average DBH of about 8 to 9 inches. The sapling (1-7 cm DBH) density ranges from about 3,300 to 3,800 TPA and canopy cover ranges from about 79 to 85%. In Colorado, reintroduced lynx are also utilizing red squirrels, cottontails, and other alternate prey items (Shenk 2005-2006). The increased use of riparian-willow systems by reintroduced lynx during late summer and fall may be associated with these alternate prey sources (Shenk 2001).

Canada lynx breed from March through April in the northern portion of their range, with kittens usually born in May through June. Recent births by reintroduced lynx in Colorado all occurred in late May to mid-June (Shenk 2008-2009). All den sites found in Colorado have occurred at high elevations within the spruce-fir zone and been associated with substantial amount of large diameter woody debris (Shenk 2005-2006). Disturbances such as insects and disease and windthrow contribute to the downed log component and are therefore important for reproduction and protection for the kittens. For denning habitat to be functional, however, it must be in or adjacent to quality foraging habitat. Because lynx may frequently move their kittens in the first few months, multiple nursery sites are needed that provide kittens with overhead cover and protection from predators and the elements (Ruediger et al. 2000). Downed logs and overhead

cover must also be available throughout the home range to provide security when kittens are old enough to travel.

Lynx are known to move long distances, but open areas, whether man-made or natural, may not be used as extensively. In north-central Washington, lynx typically avoided openings greater than about 300 feet wide. However, the Southern Rockies consist of more heterogeneous forest types and their response to natural or created openings may differ (Ruggiero et al. 2000). The current habitat use information for lynx in Colorado indicates that canopy closures of at least 40% are important at the site-scale, regardless of the type of cover involved (Shenk 2005-2006). Forested conditions between foraging and denning habitat has also been shown to facilitate movement within the home range, particularly along ridgelines where lynx commonly travel (Ruggiero et al. 1999). Linkage areas may be provided by forest stringers that connect large forested areas, or by low, forested passes that connect subalpine forests on opposite sides of a mountain range (Ruediger et. al. 2000). The Mule Creek Project is not within a designated lynx linkage area.

2). Colorado Parks and Wildlife's lynx reintroduction program

Background: The goal of CPW's lynx reintroduction program was to establish a self-sustaining lynx population within Colorado, where biologists felt quality lynx habitat still existed (CDOW report 2010).

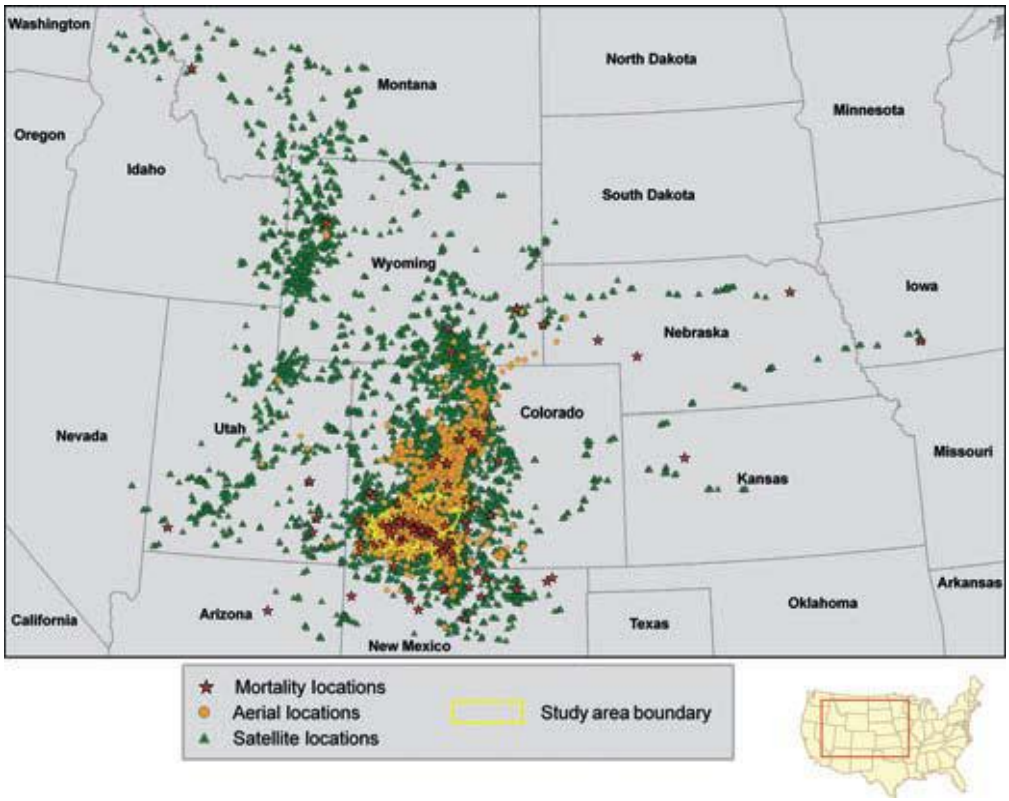
Benchmarks for "success": To evaluate the near-term success of lynx reintroduction efforts, the CPW established a set of benchmarks for tracking the progress towards Colorado's lynx population becoming self-sustaining:

- Reintroduced lynx demonstrate a high rate of survival in the critical first months after release.
- Released adult lynx demonstrate low mortality rates over the longer term, particularly in good habitat.
- Lynx remain in good habitat at densities sufficient for breeding.
- Reintroduced lynx successfully reproduce.
- Lynx born in Colorado survive and also successfully reproduce ("recruitment"); and on balance, lynx recruitment equals or exceeds mortality over an extended period of time.

Reintroduced lynx have been monitored by the CPW for over a decade to track the population's progress toward reaching these benchmarks. As of summer 2010, all of the CPW's benchmarks for successful lynx reintroduction have now been met. The details and highlights follow.

***Defining a core area*:** The CPW's strategy for lynx reintroduction was to first release a number of lynx within a "core reintroduction area" that biologists regarded as the best potential lynx habitat available in the state. Biologists hoped that over time lynx would not only remain in this area long enough to survive and reproduce, but also disperse on their own into other tracts of suitable habitat throughout the state.

CPW biologists began releasing lynx back into southern Colorado in 1999 (see map below). During 1999−2006, a total of 218 wild-caught lynx from Canada and Alaska were released in the core area.



Map outlining the core reintroduction and main monitoring area, and showing lynx locations from February 1999-November 2007. Figure from Devineau et. al (2010).

Long-term survival & habitat fidelity of lynx in Colorado: According to the paper "*Success of the Colorado Division of Wildlife's lynx reintroduction program (CDOW 2010*)"**,** two important benchmarks for the success of Colorado's lynx reintroduction attempt were for adult lynx to establish home ranges that provided sufficient prey and to remain in habitat suitable to facilitate breeding. As expected, survival was lowest in the first month after lynx were released but improved thereafter. Over the first 10 years of reintroductions and monitoring, lynx that remained in the core release area had somewhat higher annual survival than those leaving the core area (about 93 percent vs. 82 percent, respectively). As some lynx ended up in completely unsuitable habitat, this finding was not altogether surprising. Vehicle collisions, gunshot, starvation, and disease were the most common sources of mortality for reintroduced lynx, although in many cases a cause of death could not be determined. In addition to estimating adult lynx survival, monitoring showed that lynx moved out of and back into the core reintroduction area with nearly equal frequency from month to month for the first year after release. This meant that most of the released lynx remained in or near the core reintroduction area, helping ensure animal densities sufficient for breeding to occur when conditions were right.

Reproduction & recruitment among Colorado's lynx: Biologists regarded reproduction and recruitment as the keys to Colorado's lynx population becoming self-sustaining. CPW researchers first documented litters among reintroduced lynx in the spring of 2003, and reproduction also was documented in 2004, 2005 and 2006. In 2006, a Colorado-born female that gave birth to two kittens represented the first documented recruitment of Colorado-born lynx

into the breeding population. Litter sizes have averaged 2−2.8 per female. As of 2010, the breeding population included a number of Colorado-born male and female lynx that have established territories and now produce litters.

Observations of lynx reproduction in Colorado has thus far demonstrated a pattern of several years of higher reproductive success followed by several years of lower reproductive followed by an apparent return to better years. Variation in prey abundance is one potential explanation for this pattern. Fluctuating reproduction has occurred among Colorado lynx in both the core reintroduction area and outside the reintroduction area. Whether the pattern of variable reproduction among Colorado's lynx repeats as predictably as the classic Canadian lynx-snowshoe hare cycle remains to be determined.

Status & forecasted trends for Colorado's lynx population: Today, Colorado's lynx population includes surviving reintroduced adults, lynx born to reintroduced animals, the offspring of first, and perhaps second-generation, native-born lynx, and possibly some naturally occurring lynx that were here before CPW's reintroduction program began.

In order for Colorado's lynx population to remain self-sustaining, enough kittens need to be born and survive to breeding age to at least offset and preferably exceed the annual losses which inevitably occur among adult lynx. Based on patterns observed to date for lynx residing in Colorado's core reintroduction area, CPW biologists and researchers predict that the lynx population in the core area should be able to sustain itself at existing densities into the foreseeable future with no further augmentation, assuming the patterns of annual reproduction and survival observed to date repeat themselves during the next 20 or more years.

Synopsis & looking to the future for Colorado's lynx population: Based on the results from reintroduction and monitoring efforts to date, Colorado's lynx reintroduction has successfully achieved the program's original goals and benchmarks.

Data collected during a decade of monitoring by CPW demonstrates that individual lynx can survive long-term in at least some parts of Colorado. Reintroduced lynx have for the most part remained in good habitat, have engaged in breeding behavior and have produced kittens that were recruited into the Colorado breeding population. Estimated rates and trends in survival and recruitment seen over the first decade after reintroduction began – if sustained over the coming decades – should be sufficient to maintain a lynx population of some reasonable size in Colorado in at least the core reintroduction area without the need for additional augmentation. Although the results thus far are encouraging, no one knows to what extent Colorado will still be a good home for lynx in the more distant future. Changes in land use, forestation, and climate all will likely play a role in shaping the future of lynx in Colorado and elsewhere. One challenge facing the CPW is how to most effectively track long-term trends in lynx occurrence and distribution in Colorado. Accurately estimating the actual number of lynx in Colorado has been and will continue to be problematic because the habits and habitats of lynx do not lend themselves to inventory via established methods for wildlife population estimation. Instead, CPW biologists and researchers are currently working to develop reliable ways of estimating habitat occupancy and lynx distribution as indices of occurrence, and to strike a proper balance between monitoring

the persistence of lynx within the core reintroduction area and lynx that may be pioneering and expanding into other portions of the state.

LYNX ANALYSIS UNITS AND EXISTING CONDITION OF CANADA LYNX HABITAT

A Lynx Analysis Unit (LAU) is a project analysis unit upon which direct, indirect, and cumulative effects analyses are evaluated for Canada lynx. An LAU provides a constant area for comparison of effects to lynx over time. While an LAU is not intended to depict an actual lynx home range, LAU's were established to approximate the size of area needed by an individual lynx. LAU's were established and lynx habitat was mapped for the KFO in 2001 following the listing of the Canada lynx as a threatened species. The original LAU designations were updated in 2003 and habitat modeling/tracking was refined in 2003 in coordination with the U.S. Forest Service.

DESCRIPTION OF THE WILLIMAMS FORK LYNX ANALYSIS UNIT

LAU's have been developed as fixed areas on the landscape, against which to measure and track changes and impacts to lynx habitat. The LAU affected by this proposed project includes the Williams Fork LAU.

Williams Fork LAU

The Williams Fork LAU is located in the southeastern portion of the Kremmling Field Office in northwest Colorado. The entire LAU is 125,546 acres and contains 92,163 acres of mapped lynx habitat as described in Table 4 based on GIS analysis. Table 5 was provided by the USFS and describes suitable and unsuitable habitat pre and post mountain pine beetle epidemic. This LAU adjoins three other LAU's; Fraser LAU, Clear Creak LAU, and Blue River LAU (Figure 6). Table 5 summarizes the acres of lynx habitat in the Williams Fork LAU. See Figure 7 for the distribution of lynx habitat within the Williams Fork LAU.

Table 4. Acres of lynx habitat, Williams Fork LAU

Habitat type	Acres USFS	Acres BLM	Acres Private	Acres State	Total	Percent of habitat	Percent of BLM habitat
Denning	38,786	25	286	3	**39,100**	42.4	
Winter foraging	37, 610	111	363	120	**38,204**	41.4	
Other	8,805	392	557	0	**9,754**	10.6	
Unsuitable*	5,091	0	14	0	**5,105**	5.6	
Total	**90,292**	**528**	**1,220**	**123**	**92,163**	100.00	0.6

Table 5. Comparison of acres and percent total LAU area by suitable and currently unsuitable lynx habitat, 2001 assessment and 2008 post mountain pine beetle epidemic^

LAU	HABITAT	ORIGINAL (2001)		REVISED (2008)	
		ACRES	%	ACRES	%
WILLIAMS FORK	LYNX HABITAT	89,959	100%	90,007	100%
	SUITABLE	84,849	94%	40,030	44%
	CURRENTLY UNSUITABLE*	5,110	6%	49,977	**56%**
	FORAGE (w/o denning)	37,962	42%	12,634	14%
	DENNING (also forage)	39,084	43%	23,391	26%
	OTHER HABITAT	7,803	9%	4,005	4%

^Data provided by USFS, "Reclassification of Denning, Winter Forage And Other Habitat, Revised November 5, 2008."

Table 6. Existing and Baseline with the Proposed Action Figures Included

LAU NAME – WILLIAMS FORK, 92,163 habitat acres						
Habitat	**Environmental Baseline (Acres) (Mar. 08') (A)**	**Recent Projects/Other Project That Were Consulted On (B)**	**Proposed Action – Fuels Reduction (Acres) (C)**	**Cumulative Change (Acres) (D)**	**Result After Hazard Tree Project (Acres) (E)**	**% Change From Existing (F)**
Denning	23,391	0	0	**0**	23,391	0
Winter Foraging	12,634	0	0	**0**	12,634	0
Other	4,005	0	-177	**-87**	3,918	2.2
Unsuitable*	49,977	0	0	**0**	49,977	0

*Acres for unsuitable habitat are based on data provided by the USFS 2008 for "simulated lodgepole pine mortality, created from a modeled version of the forest's existing vegetation database where all the lodgepole pine HSS 4 or greater (>8.9" DBH) was killed.

Williams Fork LAU*: Past, Current and Planned Federal Land Management Activities*

Currently there are no other planned projects in the Williams Fork LAU. Ongoing activities include outfitters and guides for big game hunts, dispersed recreation, and grazing.

Evaluated Species Survey Information within the Williams Fork LAU

Site visits conducted in June and August of 2012 indicated few prey species are available for lynx as well as other predators in the Mule Creek Project area. No lynx tracks were observed during the visits and no evidence of a snowshoe hare population, the predominate prey species for lynx, was found based on fecal pellet observations. The lack of understory vegetation available for cover and forage is likely the reason for the scarcity of snowshoe hares in the project area. Pine squirrels were observed or heard during the field visits and would likely be the primary prey species for lynx if lynx were to inhabit the area for any length of time.

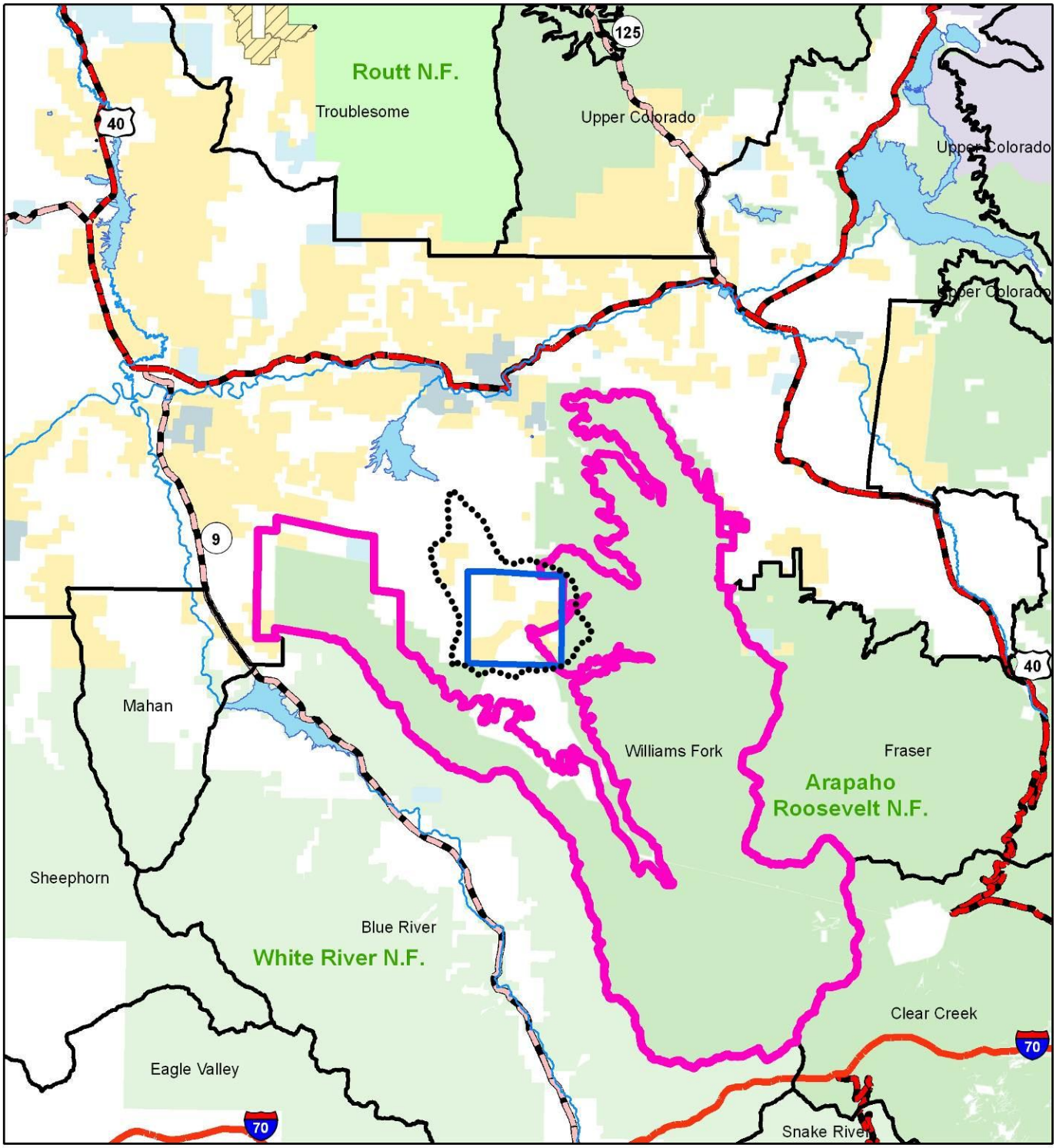
According to Colorado Parks and Wildlife records from 1999 to 2004, no radio collared lynx have been recorded traveling through Mule Creek Project area. However, several radio collared lynx have been recorded in the Williams Fork LAU, the closest location recorded approximately 4 miles northwest of the project area. Several lynx have been tracked passing through central Grand County; however, most are located further to the southeast approximately 15-20 miles away.

Within the Project Area, 405 acres are within the Williams Fork LAU. Within that area, 141 acres are designated as "other" lynx habitat and 22 acres are designated as "winter" habitat. 87 acres within the LAU will be treated mechanically. These acres have not been mapped as lynx habitat, however, based on field visits most of the dominate vegetation is mature lodgepole pine with little to no vegetative ground cover. There are a few small patches of aspen and spruce /fir on the edge of the 87 acre unit. Therefore, these 87 acres would likely fall into the category of "other" lynx habitat and would result in a 2.2% change from existing conditions (Table 6). The elevation range of these 87 acres is from 8,300' to 8,860'. If lynx are present in the Williams Fork LAU, their use of the project area would likely be limited to travel through the area during summer and fall. Figure 8 shows the location of the proposed project in Grand County and lynx habitat within the project area.

LAU MAPS:

Figure 6 - Lynx Analysis Units and Land Ownership.
Figure 7 - Lynx Habitat in the Williams Fork LAU.
Figure 8 - Mule Creek Project Area and Lynx Habitat.

Figure 6.
Lynx Analysis Units and Land Ownership



Legend

- Mule Creek Project Area
- Mule Creek Action Area
- Williams Fork LAU
- National Park
- LAUs
- US Forest Service
- Troublesome WSA
- Private

Land Status

- Bureau of Land Mgt
- State
- Parks and Wildlife
- State Forest

Williams Fork LAU Acres

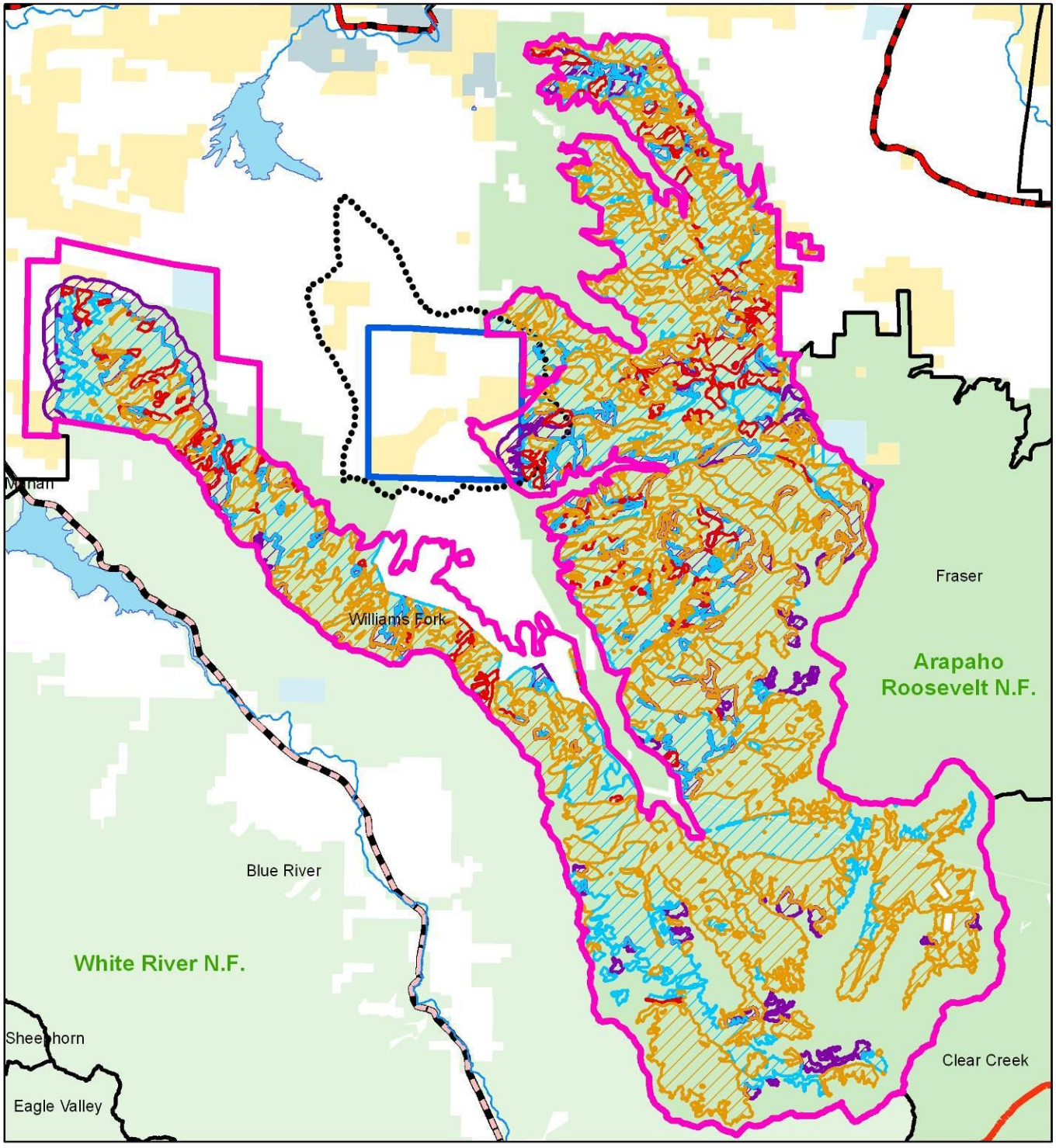
USFS	115,888
BLM	1,289
PRIVATE	7,619
STATE	750
TOTAL	125,546

0 1.25 2.5 5 7.5 10 Miles

March 1, 2013

1:350,000

Figure 7.
Lynx Habitat in the Williams Fork LAU



Legend

- Action Area
- Project Area
- Williams Fork LAU
- LAUs
- Bureau of Land Mgt
- Parks and Wildlife
- US Forest Service
- Private
- State

Lynx Habitat

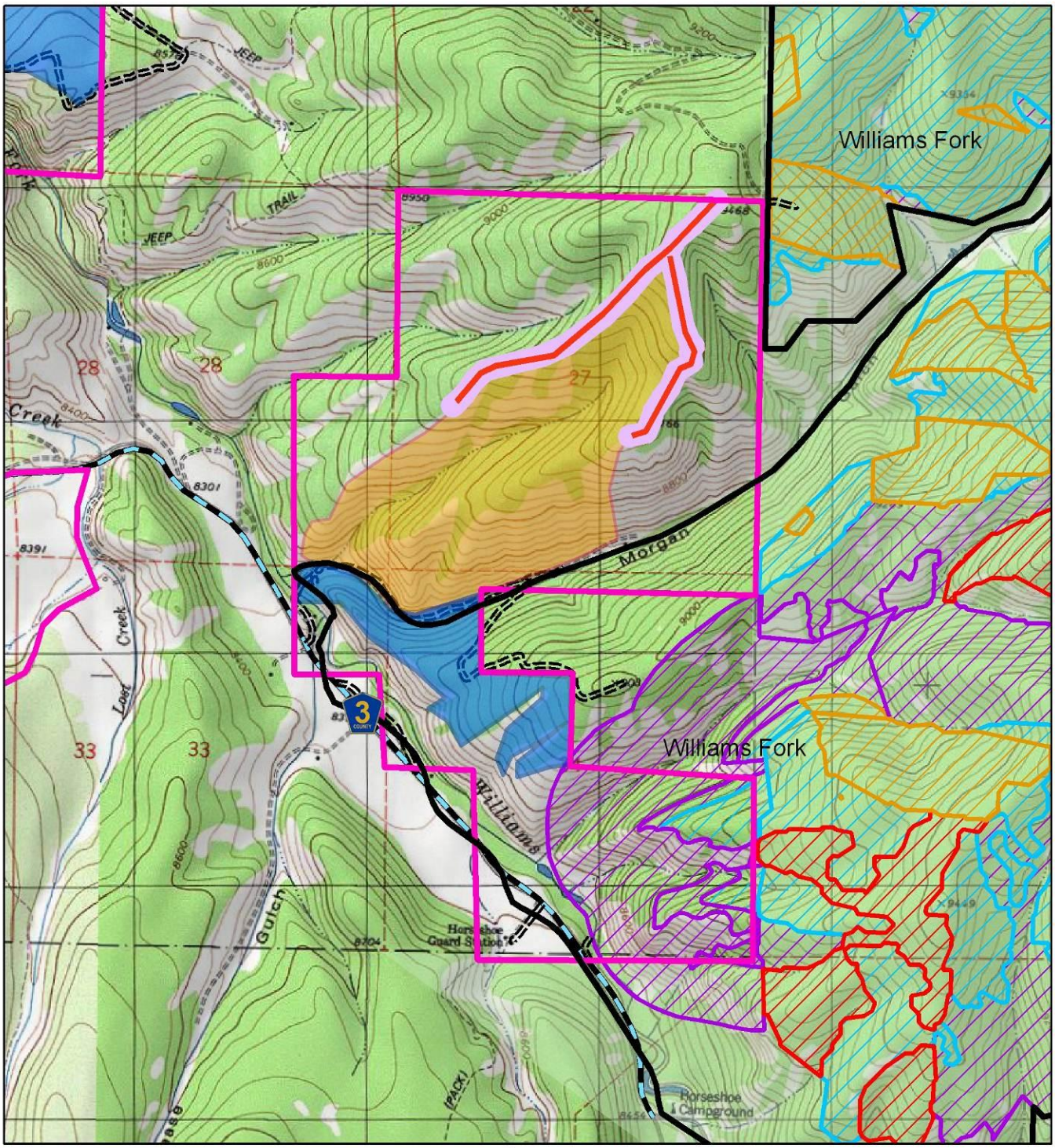
- Denning/Winter
- Other
- Unsuitable
- Winter

0 1 2 4 6 8 Miles

March 1, 2013

1:215,000

Figure 8.
Morgan Gulch Project Area and Lynx Habitat



Legend

- Williams Fork LAU
- Project Boundary
- Morgan Gulch temp road 1.0 mi
- Mechanical treatment 45 acres
- Mechanical treatment 87 acres
- Morgan Gulch burn unit 283 acres

Lynx Habitat

- Denning/Winter
- Other
- Unsuitable
- Winter

0 0.125 0.25 0.5 0.75 1 Miles

March 1, 2013

1:25,000

T. 1 S. R. 78 W.
Sec.27, 28, 33, 34; 6th P.M.

No Warranty is made by the Bureau of Land Management as to the Accuracy, Reliability, or Completeness of this Data for Individual Use or Aggregate Use with Other Data.

CANADA LYNX CONSERVATION MEASURES

Canada Lynx Conservation Assessment and Strategy

The Canada Lynx Conservation Assessment and Strategy (LCAS) (Ruediger *et al.* 2000) provides guidance for various management activities (recreation, forest roads and trails, highways, as well as oil and gas leasing) to provide a consistent and effective approach to conserve the lynx and its habitat on federal lands in the United States. Conservation measures are provided to assist federal agencies in seeking opportunities to benefit lynx and to help avoid negative impacts through the thoughtful planning and implementation of activities. Plans and projects that incorporate this guidance are generally not expected to have adverse effects to lynx, and implementation of these measures across the range of lynx is expected to lead to conservation of the species (Ruediger *et al.* 2000).

Specific to timber management, the LCAS (Ruediger et al. 2000, page 2-2) identifies that timber management could affect Canada lynx by:

- Removal of most standing biomass, especially larger size classes of trees, from the site
- Smaller, more dispersed patch sizes and concentrated harvest at lower elevations, resulting in a greater degree of habitat fragmentation
- Selective removal of particular tree species
- Soil disturbance and compaction by heavy equipment, which may result in increases of exotic plants that can compete with native vegetation
- Harvest, planting and thinning treatments that may give a competitive advantage to certain tree species
- Construction of roads that may be used during winter as designated or groomed travel routes for snowmobiles or cross-country skiers

Conservation Measures (Standards) and Design Criteria – *The LCAS (Ruediger et al. 2000, pages 7-4 – 7-6) identifies the following conservation measures (standards) specific to timber management activities: In addition to the LCAS conservation measures, project specific design features have been developed.*

<u>Project planning – standards</u>

1. Management actions (e.g. timber sales, salvage sales) shall not change more than 15 percent of lynx habitat within a LAU to an unsuitable condition within a 10-year period.
    - **Currently implementation of management actions would not change more than 15% of lynx habitat within a LAU to an unsuitable condition within a 10-year period. Implementation would not result in more than 15 % over a 10 year period.**

2. Following a disturbance, such as blowdown, fire, insects/pathogens mortality that could contribute to lynx denning habitat, do not salvage harvest when the affected areas is smaller than 5 acres. Exceptions to this include: 1) Areas such as developed campgrounds; 2) LAU's where denning habitat has been mapped and field validated (not simply modeled or estimated), and denning habitat comprises more than 10% of lynx habitat within a LAU; in

these cases salvage harvest may occur, provided that at least the minimum amount s maintained in a well-distributed pattern.

- **Natural disturbance actions within the identified LAU are currently broad scale in nature with relatively high amounts of bark beetle mortality occurring. With this broad scale mortality occurring, actual (not simply modeled) denning habitat is anticipated to increase in the Williams Fork LAU.**

3. In lynx habitat, pre-commercial thinning will be allowed only when stands no longer provide snowshoe hare habitat (e.g. – self pruning processes have eliminated snowshoe hare cover and forage availability during winter conditions with average snowpack).
   - **Pre-commercial thinning is not part of the proposed action.**

4. In aspen stands within lynx habitat in the Cascade Mountains, Northern Rocky Mountains and Southern Rocky Mountains Geographic Areas, apply harvest prescriptions that favor regeneration of aspen
   - **The proposed management actions are designed to remove lodgepole pine; incidental aspen could regenerate in aspen dominate areas.**

The LCAS (Ruediger et al. 2000, pages 7-3 – 7-4) identifies the following conservation measures (standards) applicable to all programs and activities:

Project planning - standards.

1. Within each LAU, map lynx habitat. Identify potential denning habitat and foraging habitat (primarily snowshoe hare habitat, but also habitat for important alternate prey such as red squirrels), and topographic features that may be important for lynx movement (major ridge systems, prominent saddles, and riparian corridors). Also identify non-forest vegetation (meadows, shrub-grassland communities, etc.) adjacent to and intermixed with forested lynx habitat that may provide habitat for alternate lynx prey species.
   - **Lynx habitat within the project area has been mapped for all areas.**

2. Within a LAU, maintain denning habitat in patches generally larger than 5 acres, comprising at least 10 percent of lynx habitat. Where less than 10 percent denning habitat is currently present within a LAU, defer any management actions that would delay development of denning habitat structure.
   - **Within the LAU, all 87 acres of the proposed action occurs in dead lodgepole pine (standing). Lodgepole pine (specifically mountain pine beetle killed, MBP) is typically not considered denning habitat, and is considered "unsuitable" habitat. In addition, the project area vegetation structure and age does not reflect that of existing suitable denning habitat nor would it likely warrant future denning habitat.**

3. Maintain habitat connectivity within and between LAU's.
   - **Implementation of the proposed project would not affect habitat connectivity. Management actions would offer at the lower elevational margins of the LAU and not within the core portions of the LAU, or adjacent to other LAU's or linkage zones.**

5 … limit disturbance with each LAU as follows: if more than 30 percent of lynx habitat with a LAU is currently in unsuitable condition, no further reduction of suitable conditions shall occur as a result of vegetation management activities by federal agencies.

- **According to current vegetation database records, 56% of the Williams Fork LAU is in a currently unsuitable condition due to the mountain pine beetle epidemic. However, the project is designed to remove dead and dying trees and avoid impacts to snowshoe habitat. Implementation of the proposed action will not increase the unsuitable condition of the LAU.**

VI. EFFECTS OF THE PROPOSED ACTION ON SPECIES EVALUATED

Canada Lynx

The evaluation of the effects of the project on lynx is assessed with respect to relevant project standards and conservation measures recommended in the Canada Lynx Conservation Assessment and Strategy (Ruedinger et al. 2000), primarily maintaining and improving suitability of the "Other" lynx habitat category.

Risk factors: One of the principal factors affecting lynx habitat in Colorado may be increased human presence and human alteration or reduction of existing remote habitat areas. Human population growth and expansion of recreational activities into remote mountainous areas has contributed to the creation of migration barriers, fragmentation of habitat, and reduction in areas of solitude and refugia (Ruediger et al. 2000). The effects of increased human presence and roads also may reduce habitat effectiveness. Roads fragment habitat and increase the probability of mortalities from vehicle collisions (Ruediger et al. 2000). Human presence and alteration of habitat also may affect potential dispersal corridors thereby isolating populations and increasing the susceptibility of lynx to the extinction process (Ruediger et al. 2000).

Threats to lynx populations and habitat include timber management, fire management, recreation, livestock grazing, utility corridors, and residential, commercial and agricultural developments, such as housing, ski areas and large resorts. These actions may impact habitat, including denning, dispersal (connectivity), and foraging (mainly winter habitat for the snowshoe hare).

Trapping has also been documented as possibly being one of the factors for the initial decline of lynx in the state of Colorado. While current small game regulations allow live trapping and have provisions for accidental capture of lynx, trapping is of less concern since the state of Colorado made methods other than live trapping illegal in 1997. Roads may increase the vulnerability of lynx to hunters and trappers as well as increase the chances of road deaths. Lynx frequently travel along roadways when adequate cover is present on both sides of the road.

One additional issue related to increased human presence is the potential for additional access opportunities for predators such as coyote and red fox into winter areas that could formerly be accessed only by lynx. Lynx are adapted for travel in deep snow conditions. Its large feet (for its size) permit travel over deep, soft snow conditions that would normally restrict coyote and red

fox movement. In areas where winter recreation activities such as snowshoeing, cross-country skiing, and snowmobiling occur, snow-packed trails and areas can occur that may permit predators such as red fox, bobcat, and coyote access to snow bound sites that could normally only be traversed by lynx. Increased competition from red fox, bobcat, and coyote could reduce prey availability for lynx thereby reducing winter habitat effectiveness.

Potential risks associated with the activities with the Mule Creek Fuels Reduction Project are as follows:

Salvage Harvesting Potential Effects

Direct Effects on Species **-** Direct effects are those directly impacting lynx or their primary prey as the result of salvage harvesting activities. Direct impacts may range from temporary disturbance due to salvage harvest and possible direct mortality resulting from salvage activities. However, direct mortality is considered unlikely because of the Project Design Criteria and Conservation measures in place and the general mobility of the species.

The noise disturbances associated with the proposed action may reduce lynx use of the immediate harvest areas while harvest and post-harvest activity is occurring. Disturbances are expected to subside thereafter, with increased use of the post-harvest areas most likely occurring immediately following the activity as long as adequate habitat remains on site.

Lynx kittens are vulnerable when very young and could be present nearby or in den sites while salvage operations are taking place and could potentially be injured or killed by logging equipment and activities. However, it is unlikely that logging would occur during this time period (approximately April to late June), and suitable denning habitat is likely far enough away from the project area to avoid impacts to lynx kittens. Project Design Criteria are in place limiting the timeframe and location of harvesting to help protect lynx kittens.

The project area could be used by lynx for hunting and travel during late summer and fall. Any effects to lynx would be the result of changes in vegetative structure within the treatment units. Although beetle infested trees would be removed as a result of the proposed project, the number of trees which would remain after the project would be sufficient to provide cover for lynx moving through or hunting in the project area.

Indirect Habitat Effects **-** The indirect effects of the proposed action will have temporary influences on lynx and their primary prey species. Reduced foraging opportunities within the treatment areas may occur in proportion to the amount of prey species displacement and/or reductions in prey habitat. Reduced winter foraging and denning opportunities will occur due to the reductions in large coarse woody debris and further changes in canopy closure. However, it is important to keep in mind that the main factor affecting lynx habitat is the influence upon habitat by the spruce-beetle itself and the activities associated with the Mule Creek Project are then additive.

In salvage units, the degree of beetle activity per stand varies from 90% to 100% with the majority of units being in the 100% category. Each unit will result in reduced canopy closures

regardless and will result in more open stand conditions that will release existing understory vegetation (shrubs and seedlings). This release will be most prevalent in salvage units in which small to medium sized openings are created.

Benefits – The harvest of dead and diseased trees is not necessarily a long-term negative impact upon lynx habitat. The Southern Rockies Lynx Amendment recognizes that vegetation management could be utilized to mimic or approximate natural succession and disturbance processes while maintaining habitat components necessary for the conservation of lynx. Vegetation management could be used to provide a mosaic of habitat conditions through time that supports Dense Horizontal Cover, and high densities of snowshoe hare providing winter snowshoe hare habitat in both the Stand Initiation Structural Stage and in mature, multi-story conifer vegetation. Vegetation management activities could focus in areas that have potential to improve winter snowshoe hare habitat but presently have poorly developed understories that lack Dense Horizontal Cover.

Cumulative Effects - Although private and USFS lands adjoin the proposed project area, none of the timber harvest activities which have been completed or are planned for the near future would downgrade the "Other" lynx habitat category. Numerous acres of "Other" lynx habitat, denning habitat, and winter foraging habitat are available to lynx within the Williams Fork LAU or adjoining LAUs. No future projects which would downgrade any of these lynx habitat types are likely to occur in the future. As a result of these factors, the proposed project would not cause cumulative effects which would be adverse to Canada lynx within the Williams Fork LAU, adjoining LAU's or on adjoining private and USFS land.

There are no anticipated cumulative effects to lynx as a result of non-federal actions occurring within this LAU. Non-federal actions are not anticipated to affect the condition of lynx habitat in the LAU nor are they likely to influence Canada lynx.

VII. DETERMINATION OF EFFECTS & RATIONALE

Canada Lynx

The project does occur within lynx habitat and if implemented would affect lynx habitat as described. The project does not occur within a lynx linkage zone. This project would temporarily lower the quality of 87 acres of 'other' lynx.

This project has been designed in association with the Canada Lynx Conservation Assessment and Strategy (Ruediger et al., 2000) and is consistent with the CLCAS guidance. However, impacts to lynx habitat would occur as a result of implementation.

The Colorado Lynx Project Decision Screen was reviewed in reference to this Biological Assessment and within the screen it was found that: Pre-Screen 1 & 2 Review (none apply) → Screen 1, Proposed Project or Action- "Project or action occurs within an LAU or an identified lynx linkage area → Yes → Has potential to directly or indirectly affect lynx or lynx habitat → Yes → In a mapped lynx linkage area → No → Maintains or restores lynx habitat connectivity in and between LAUs → Yes → Results in > 2 acres of lynx habitat permanently lost or maintained as unsuitable→ No → Vegetation Mgt., Fire → Go to Screen 5a."

Screen 5a, Vegetation Management- "Project or Action → LAU is currently > 30% in SISS → Project would result in additional lynx habitat in a SISS (unsuitable condition) → No → Project will remove dead and dying trees and avoid impacts to snowshoe hare habitat → Yes →NLAA."

The Mule Creek Fuels Reduction project "**may affect, but is not likely to adversely affect"** the Canada Lynx or its habitat. The impacts of the project to this species are insignificant and discountable.

Rationale:

- The Mule Creek Fuels Reduction project would open the existing canopy in a 90-110 year old lodgepole pine stand, which would allow understory grasses and forbs to establish. The understory vegetation would provide cover and food for prey species such as snowshoe hares and other small mammals and rodents. These species would provide a food source for Canada lynx where little or none exists at present. In addition, the open canopy would allow young lodgepole trees to establish and provide additional food and cover for prey species as well as cover for lynx, which could travel through the project area.

- Lynx may avoid the project area during timber harvest activities, however, since the expected time to complete these activities is less than 90 days per year over a maximum three year period, this impact would be short term.

- Removal of beetle-infested and dead trees in the project area would reduce the potential for large-scale wildfire which could have a longer time period effect on lynx habitat than the proposed project.

- The proposed project would not result in the area becoming unsuitable habitat for lynx nor would it reduce the overall value of the Williams Fork LAU for lynx.

TABLE 7: Determination and Conservation Measures Summary

Species	Determination	Rationale	Conservation Measures
Canada lynx *Lynx canadensis*	May Effect, Not Likely to Adversely Affect.	The Colorado Lynx Project Decision Screen was reviewed in reference to this Biological Assessment and within the screen it was found that the project is a NLAA determination. The proposed project would not result in the area becoming unsuitable habitat for lynx nor would it reduce the overall value of the Williams Fork LAU for lynx. The Mule Creek Fuels Reduction project has been designed in association with the Canada Lynx Conservation Assessment and Strategy and is consistent with the CLCAS guidance.	Project design criteria, conservation measures.
North American Wolverine *Gulo Gulo luscus*	May Effect, Not Likely to Adversely Affect.	The FWS identified climate change as the primary threat to wolverine along with lesser impacts from dispersed recreation. Considering the territory or home range size for this animal in comparison to the area extent of the habitat affected by the proposed action, no measurable change in primary prey populations or habitat can be ascertained at the landscape level.	Project design criteria, conservation measures
Osterhout milkvetch *Astragalus osterhoutii*	No Effect	No habitat within the analysis area.	N/A
Penland beardtongue Penstemon penlandii	No Effect	No habitat within the analysis area.	N/A
Bonytail *Gila elegans*	No Effect	No habitat within the analysis area.	N/A
Colorado Pikeminnow *Ptychocheilus lucius*	No Effect	No habitat within the analysis area.	N/A
Humpback Chub *Gila cypha*	No Effect	No habitat within the analysis area.	N/A
Razorback Sucker *Xyrauchen texanus*	No Effect	No habitat within the analysis area.	N/A
Greenback Cutthroat Trout *Oncorhynchus clarki ssp. stomias*	No Effect	No habitat within the analysis area.	N/A

VIII. CONSERVATION MEASURES TO AVOID, MINIMIZE, OR MITIGATE ADVERSE EFFECTS

The Recommended Design Criteria are part of the project design and are built into implementation plans for the project. Because they are part of the design, effect evaluations and determination are assessed presuming use of and complete compliance with these measures.

Obligation: Notify the KFO wildlife biologist of operational changes that affect performance, timing or results of the proposed action prior to initiating any treatments.

IX. RESPONSIBILITY FOR A REVISED BIOLOGICAL ASSESSMENT

This Biological Assessment was prepared based on presently available information. If the action is modified in a manner that causes effects not considered, or if new information becomes available that reveals that the action may impact endangered, threatened, or proposed species that in a manner or to an extent not previously considered, a new or revised Biological Assessment will be required.

In the event that a project or action proceeds under this concurrence and later results in any "take" of lynx or exceeds the conditions of this concurrence, the BLM must reinitiate consultation for the project or action with the Colorado USFWS Field Office.

X. MONITORING AND HABITAT IMPROVEMENT RECOMMENDATIONS

Monitoring and Habitat Improvement Recommendations

Monitoring is the gathering of information and data and observing the results of management activities to provide the basis for evaluation. Monitoring for the Mule Creek Fuels Reduction Project will include implementation monitoring and evaluation to ensure that standards and guidelines are being incorporated during the project activities. Also included is effectiveness monitoring and evaluation to determine whether objectives of the project are being met. Based on the analysis completed for the Mule Creek Fuels Reduction Project, the following monitoring procedures are recommended for the wildlife resources due to the type and location of activities associated with the proposed project.

Objective: To evaluate whether project specific wildlife design criteria are being implemented. To examine if a need exists to modify specific wildlife design criteria for future projects.

Method: Perform site inspections during and/or following the vegetative management activities to determine compliance with project design criteria. Items important to monitor include:

- ✓ TES species monitoring
- ✓ Timing of project activity
- ✓ Noxious weeds monitoring
- ✓ Temporary road reclamation

- ✓ Avoidance of forest patches with understory vegetation
- ✓ Avoidance of Aspen/spruce-fir or Spruce-fir stands

Action: Take corrective action as needed to meet specific wildlife design criteria. Consult with the necessary managers as needed to take corrective measures if necessary.

XI. CONTACTS AND CITATIONS:

Contacts

March 18, 2011 - the Fish and Wildlife Service (FWS- Creed Clayton) provided an *updated* email to the Kremmling Field Office (KFO) listing those proposed, threatened, endangered (PET) and candidate species that might occur on, or be affected by actions implemented within, the KFO.

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APPENDIX A.
COLORADO LYNX PROGRAMMATIC SCREENS AND SECTION 7 AGREEMENT STANDARD COMPLIANCE CHECKLIST

District: Northwest Field Office: Kremmling

Project Name / No. Mule Creek Fuels Reduction Project

Brief Description of Project Type and Activities: Salvage/Hazard Tree Removal on 87 acres

LAU(s): Williams Fork

BE/BA Completion Date 3/7/2013 Compliance Confirmation Date 3/7/2013

Project Biologist Megan McGuire

Agreement Criteria and Conditions: (initial each)

1. This programmatic concurrence applies to Bureau of Land Management (BLM) projects or actions where the biological assessment clearly and properly leads to a "not likely to adversely affect" determination. The programmatic concurrence is expressly limited to those simple, straight-forward actions which clearly will have documentation supporting insignificant, discountable effects on lynx at either the population and/or individual levels.
Meets: MM

2. Application of the screens and determination of project effects on lynx, for compliance with section 7, must be accomplished by a qualified wildlife biologist assigned by the BLM as the lead and responsible biologist for the project. Meets: MM

3. In no case does this programmatic concurrence apply to any project or action that has the potential to cause or increase the likelihood of "take", as defined by the FWS regulations.
Meets: MM

4. In the event that a project or action proceeds under this programmatic concurrence and later results in any "take" of lynx or exceeds the conditions of this programmatic concurrence, the BLM must initiate formal consultation or request reaffirmation of concurrence, as appropriate, for that project or action with the FWS Colorado Field Office for all project components where the BLM retains discretionary authority over the project or action.
Meets: MM

5. This programmatic concurrence DOES NOT apply to management activities, individually or cumulatively that are likely to adversely impact habitat that currently provides significant foraging opportunity for lynx or habitats that are currently regenerating to such conditions. This programmatic concurrence DOES NOT apply to management activities that are of a nature or magnitude, individually or cumulatively, that could compromise the function of a single lynx

territory, as that may constitute "take" under section 9 of the Endangered Species Act and an adverse effect under section 7, requiring individual consultation.
Meets: ____MM_____

6. Regardless of whether the project or action meets other criteria, this programmatic concurrence DOES NOT apply to any projects or activities that would result in a long-term commitment of landscape linkage corridor resources (e.g., habitat loss or alteration) in designated or identified landscape linkages and movement corridors unless a management plan for that corridor/linkage is in place and has been jointly agreed to by FWS the Service and BLM the Bureau of Land Management through the section 7 consultation process, and the proposed activity is consistent with that plan. Actions qualifying for this concurrence in absence of such a plan will not foreclose any future corridor management options for lynx.
Meets: __MM_____

Was a BA completed prior to screening the project?	☒ YES	☐ NO	
What was the final BA determination?	☐ No Effect	☒ NLAA	
Was the project pre-screened?	☒ NO	☐ Pre-screen 1	☐ Pre-screen 2

Screen(s) Used (Attach with pathway(s) used clearly marked):

The Colorado Lynx Project Decision Screen was reviewed in reference to this Biological Assessment and within the screen it was found that: Pre-Screen 1 & 2 Review (none apply) → Screen 1, Proposed Project or Action- "Project or action occurs within an LAU or an identified lynx linkage area → Yes → Has potential to directly or indirectly affect lynx or lynx habitat → Yes → In a mapped lynx linkage area → No → Maintains or restores lynx habitat connectivity in and between LAUs → Yes → Results in > 2 acres of lynx habitat permanently lost or maintained as unsuitable→ No → Vegetation Mgt., Fire → Go to Screen 5a."

Screen 5a, Vegetation Management- "Project or Action → LAU is currently > 30% in SISS → Project would result in additional lynx habitat in a SISS (unsuitable condition) → No → Project will remove dead and dying trees and avoid impacts to snowshoe hare habitat → Yes →NLAA."

"This action meets all of the conditions of the September 8, 2010, Programmatic Consultation Agreement for Canada Lynx in Colorado between the Bureau of Land Management and Fish and Wildlife Service and Blanket Section 7 Concurrence."

Project Biologist_Megan McGuire_____ Date __3/7/2013_____

APPENDIX B.
CONSULTATION SUMMARY SHEET
TO DOCUMENT CONSISTENCY WITH THE SOUTHERN ROCKIES LYNX SCREENS &

Page _1__ of _1__ Administrative Unit: __KFO__

Completed by: __Megan McGuire_____(*Project Biologist)*

Reviewed by: _____(*Forest Biologist, if different)*

Date: __3/7/2013_____

Project Name and Description	**Effects of Action on Canada Lynx**	**Cumulative Effects (ESA)**	**How does the project meet screening criteria?**	**Determination of Effects on Canada Lynx**
Mule Creek Fuels Reduction Project. T. 1 S., R. 78 W., sec. 20, 21, 27-29, 31-34; T. .2 S., R. 78 W., sec 5, 6; 6th P.M.., Grand County, CO. Williams Fork LAU Sanitation salvage/hazard tree removal project. Includes approximately 87 acres of sanitation/salvage harvest timber removal. Timeframe: 2013-2015.	Temporary disturbance, changes in vegetative structure, reduced foraging opportunities, restores lynx habitat connectivity in the LAU. Project would not result in additional lynx habitat in a SISS (unsuitable condition). Project will remove dead trees and avoid impacts to snowshoe hare habitat.	Future projects that would downgrade lynx habitat are not likely to occur in the future. As a result, the proposed project would not cause cumulative effects which would be adverse to Canada lynx.	Screen 1, 5a. Project occurs within an LAU; Has potential to directly or indirectly affect lynx or lynx habitat; Is not in a mapped lynx linkage area; Maintains or restores lynx habitat connectivity in the LAU; Does not result in > 2 acres of lynx habitat permanently lost or maintained as unsuitable. LAU is currently >30% in SISS. Project would not result in additional lynx habitat in a SISS (unsuitable condition). Project will remove dead trees and avoid impacts to snowshoe hare habitat.	☐ *No Effect* ☒*May Affect, Not Likely to Adversely Affect*

PROGRAMMATIC CONCURRENCE

[1] *Description* should include the direct and indirect effects of the action (i.e. traffic generated, even short-term, that could affect lynx (must be discountable)). It should also include the effects of any interrelated/interdependent actions associated with the proposed action.

U.S. Department of the Interior
Bureau of Land Management
Kremmling Field Office,
2013 East Park Ave,
Kremmling, CO 80459

Finding of No Significant Impact (FONSI)

DOI-BLM- LLCON02000-2012-0001-EA

BACKGROUND

The proposed action would use fire, natural ignited fire, prescribed fire, and mechanical treatments to bring the FRCC to a more balance condition. A more desired FRCC would have a higher percentage in FRCC 1 and FRCC 2, rather than in FRCC 2 and FRCC 3. The proposed fuel treatment area within the Mule Creek Project would be approximately 2,000 acres within an overall area of 2,440 acres.

FINDING OF NO SIGNFICANT IMPACT

Based upon a review of the EA and the supporting documents, I have determined that the Proposed Action is not a major federal action and would not have a significant effect on the quality of the human environment, individually or cumulatively with other actions in the general area. No environmental effects meet the definition of significance in context or intensity, as defined at 40 CFR 1508.27 and do not exceed those effects as described in the Kremmling Record of Decision and approved Resource Management Plan (1984). Therefore, an environmental impact statement is not required. This finding is based on the context and intensity of the project as described below.

Context

The project is a site-specific action directly involving BLM administered public lands that do not in and of itself have international, national, regional, or state-wide importance. The proposed action would have positive long tern impacts with a few adverse short term impacts. The short term adverse impacts are mitigated and are outweighed by the long-term positive impacts.

Intensity

The following discussion is organized around the 10 Significance Criteria described at 40 CFR 1508.27. The following have been considered in evaluating intensity for this Proposed Action:

1. Impacts that may be both beneficial and adverse.

Beneficial impacts for the proposed project area include: reducing the acres of FRCC3 and FRCC2, reducing the risk of a catastrophic wildfire, removing dead MPB lodgepole while there is still value, and improving forest health and vigor.

Short term adverse impacts of the proposed project include: some increased emissions, cattle must be excluded from the burned area for two growing seasons, wildlife species using the project area would likely be temporarily displaced during project activities, and an increase in sedimentation could negatively impact habitat quality for aquatic wildlife by reducing water

quality. If the prescribed fires are intense, there can be changes in soil chemistry and water repellency can result. Mechanical treatments can cause short-term adverse impacts such as soil compaction and removal of protective litter and vegetation. Both natural and prescribed fire, and mechanical treatments can cause disturbance therefore there is a potential for an increase in noxious invasive species initially. The project poses a strong, but declining risk of disrupting active nests and would have potential to adversely impact migratory bird habitat. The analysis of the proposed project showed that the proposed project would have no long term adverse impacts.

2. The degree to which the Proposed Action affects public health or safety.

No adverse effects to public health and safety are anticipated to result from implementation of the proposed action. A burn plan would be written, with objectives to provide for firefighter and public safety. Burning permits would be obtained from the State and coordination with Grand County would occur to control air quality.

3. Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.

There are no unique characteristics in the geographic area.

4. Degree to which the possible effects on the quality of the human environment are likely to be highly controversial.

The effects of the proposed action on the quality of the human environment are not considered highly controversial.

5. Degree to which the possible effects on the quality of the human environment are highly uncertain or involve unique or unknown risk.

The use of mechanical and prescribe burning techniques to treat vegetation have been previously implemented in many locations BLM-wide. Thus, the effects on the human environment from the proposed action are not uncertain and do not involve unique or unknown risks.

6. Degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.

The Proposed Action neither establishes a precedent for future BLM actions with significant effects nor represents a decision in principle about a future consideration.

7. Whether the action is related to other actions with individually insignificant but cumulatively significant impacts.

The proposed action is not related to other past, present or reasonable foreseeable actions likely to result in any significant impacts. The cumulative impacts of mechanical and prescribed

burning treatments and any other reasonable foreseeable activities in the same area are not likely to result in cumulatively significant impacts.

8. The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed on the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.

The ground disturbing activities associated with the proposed action would not directly adversely affect any sites eligible for the National Register of Historic Places.

9. The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act (ESA) of 1973.

No federally endangered species would be affected by the proposed project. The project does occur within lynx habitat, which is a threatened species, and if implemented would affect lynx habitat as described. The project does not occur within a lynx linkage zone. This project would temporarily lower the quality of 87 acres of 'other' lynx habitat. This project has been designed in association with the Canada Lynx Conservation Assessment and Strategy (Ruediger et al., 2000) and is consistent with the CLCAS guidance. However, impacts to lynx habitat would occur as a result of implementation.

10. Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment.

Neither the Proposed Action nor impacts associated with it violate any laws or requirements imposed for the protection of the environment.

SIGNATURE OF AUTHORIZED OFFICIAL: __/s/ Susan Cassel_____
Field Manager

DATE SIGNED: 4/2/2013

U.S. Department of the Interior
Bureau of Land Management
Kremmling Field Office,
2103 East Park Ave,
Kremmling, CO 80459

DECISION RECORD

PROJECT NAME: MULE CREEK HAZARDOUS FUELS REDUCTION TREATMENT

ENVIRONMENTAL ASSESSMENT NUMBER: DOI-BLM-LLCON02000-2012-0001-EA

INTRODUCTION

The proposed action will use fire, natural ignited fire, prescribed fire, and mechanical treatments to bring the FRCC to a more balance condition. A more desired FRCC will have a higher percentage in FRCC 1 and FRCC 2, rather than in FRCC 2 and FRCC 3. The proposed fuel treatment area within the Mule Creek Project would be approximately 2,000 acres within an overall area of 2,440 acres.

DECISION

It is my decision to implement the Proposed Action (Alternative A), as mitigated in DOI-BLM-CO-2012-0001-EA, authorizing the Mule Creek Hazardous Fuels Reduction Treatment.

ALTERNATIVES CONSIDERED BUT NOT SELECTED

The No Action alternative is to not burn the burn units, and to not mechanically treat sections. This would lead to ground fuel loading which will increase in the near future as more standing dead trees fall to the ground. This will also pose a health and safety concern to the public due to the expected falling of dead lodgepole pine.

An alternative considered but not analyzed was to use only mechanical or only fire as a management tool. This was not chosen because it will be hard to manage fire without mechanically reducing the fuel loads around the burn units, and that it is not feasible or attainable to do mechanical treatments in all the areas of the proposed action

CONSULTATION AND COORDINATION

A list of the tribes that have been contacted as part of the consultation effort for this EA is found in Attachment 1. No comments were received from Native American Tribes that were consulted.

The Department of Road and Bridge Grand County along with the Arapaho-Roosevelt National Forest voiced concerns about noxious weeds. The Arapaho-Roosevelt National Forest was also concerned about unauthorized off-road travel onto the forest if the trees are removed.

Colorado State Forestry supports the project. Local landownes adjacent the proposed project is also in support of the project

Mitigation Measures: None

PLAN CONSISTENCY

Based on information in the EA, the project record, and recommendations from BLM specialists, I conclude that this decision is consistent with the 1984 Kremmling RMP, the Endangered Species Act; the Native American Religious Freedom Act; other cultural resource management laws and regulations; Executive Order 12898 regarding Environmental Justice; and Executive Order 13212 regarding potential adverse impacts to energy development, production, supply and/or distribution.

ENVIRONMENTAL ANALYSIS AND FINDING OF NO SIGNIFICANT IMPACT

The Proposed Action was analyzed in DOI-BLM-CO-2012-0001-EA and it was found to have no significant impacts, thus an EIS is not required.

PUBLIC INVOLVEMENT

Public Involvement was conducted by posting this project on the KRFO's on-line National Environmental Policy Act (NEPA) register on 04/02/2013. A scoping letter was sent out on 11/22/2011. On 02/02/2012 a meeting was held at the Sulphur Ranger District with the Arapaho-Roosevelt National Forest and Department of Road and Bridge Grand County. On 05/05/2012 the Hot-Suphur Fire Department had a public meeting and a project description was made available. A public meeting was held on December 12, 2012, at the Aspen Canyon Ranch near the project site, this meeting was advertised on the radio and in the local newspaper 2 weeks prior to the meeting**.**

RATIONALE

Analysis of the Proposed Action has demonstrated that there are no significant negative impacts and that it meets Colorado Standards for Public Land Health. Based on information in the EA, the project record, and consultation with my staff, I have decided to approve for implementation the Proposed Action as described in the EA. The project is not expected to adversely impact any resources long term and the benefits of the treatments outweigh the short-term adverse impacts such as soil erosion. There are many benefits to vegetation and wildlife habitat with fuel treatments before a catastrophic wildfire will occur and have long-term adverse impacts to these resources.

ADMINISTRATIVE REMEDIES

Administrative remedies may be available to those who believe they will be adversely affected by this decision. Appeals may be made to the Office of Hearings and Appeals, Office of the Secretary, U.S. Department of Interior, Board of Land Appeals (Board) in strict compliance with the regulations in 43 CFR Part 4. Notices of appeal must be filed in this office within 30 days after publication of this decision. If a notice of appeal does not include a statement of reasons, such statement must be filed with this office and the Board within 30 days after the notice of appeal is filed. The notice of appeal and any statement of reasons, written arguments, or briefs must also be served upon the Regional Solicitor, Rocky Mountain Region, U.S. Department of Interior, 755 Parfet Street, Suite 151, Lakewood, CO 80215.

The effective date of this decision (and the date initiating the appeal period) will be the date this notice of decision is posted on BLM's Kremmling Field Office internet website.

SIGNATURE OF AUTHORIZED OFFICIAL: _____

Field Manager

DATE SIGNED: